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ABSTRACT

Appropriate for secondary school students, this kit provides the basics of population dynamics in both written and visual form. Each chart covers a major population component, characteristic, or world trend. The chart titles are: (1) "World Population Growth through History," (2) "Population Growth through Natural Increase, 1775 to 1985, (3) "Effect of Migration on Population Growth, United States, 1880-1982," (4) "Population Composition by Age and Sex," (5) "Patterns of Urbanization in the World, 1900 to 2020," and (6) "Future Trends in World Population Growth, Three Assumptions." Each chart is accompanied by narrative that elaborates on information presented in the chart. A glossary of population terms is provided to assist students in building their demographic vocabulary. An accompanying issue of "Interchange" provides student study questions for each large chart and for each accompanying reading. Information on additional resources on population education and the 1985 World Population Data Sheet are also included. (LH)

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An Introduction To:

POPULATION *Dynamics*

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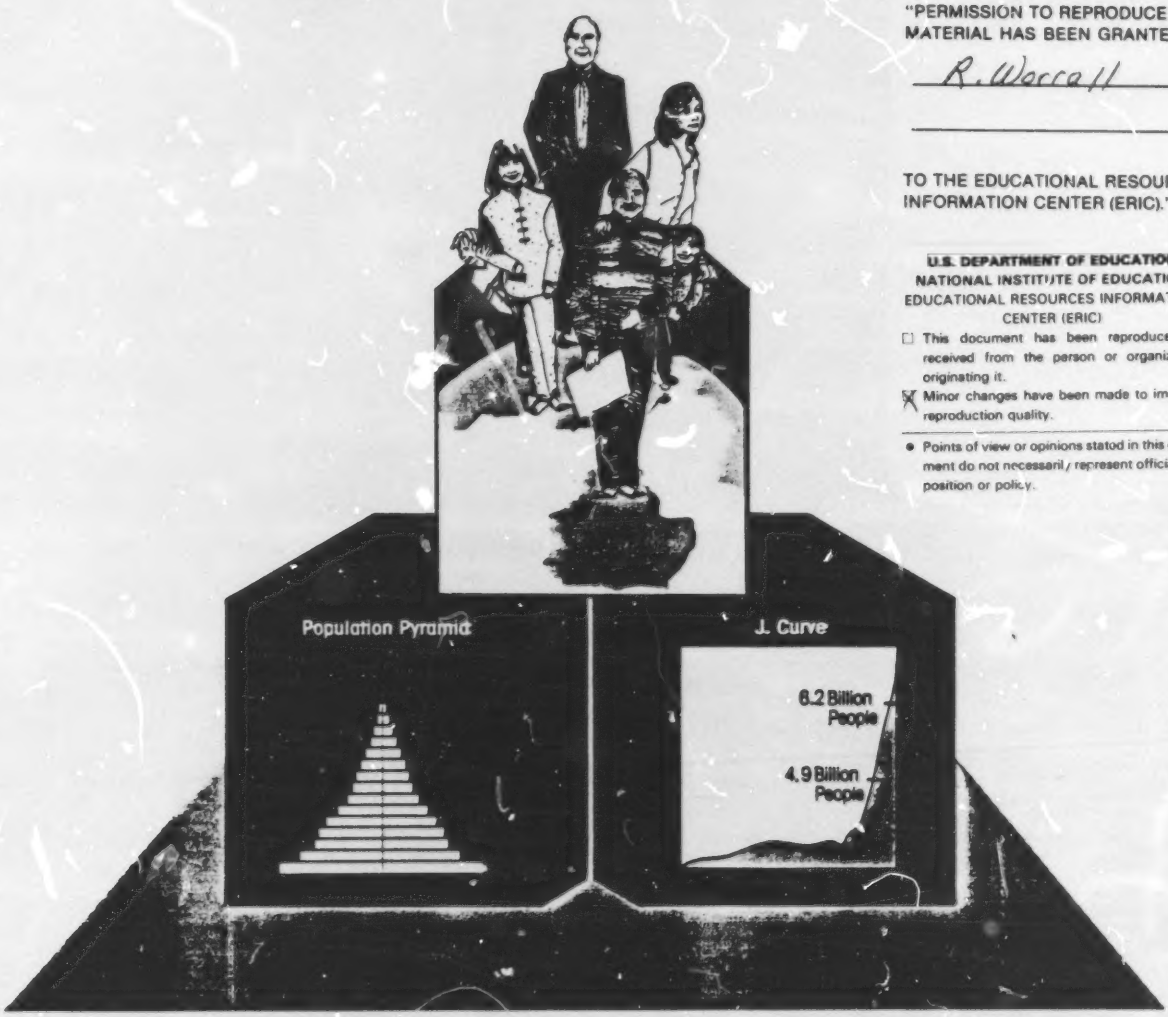

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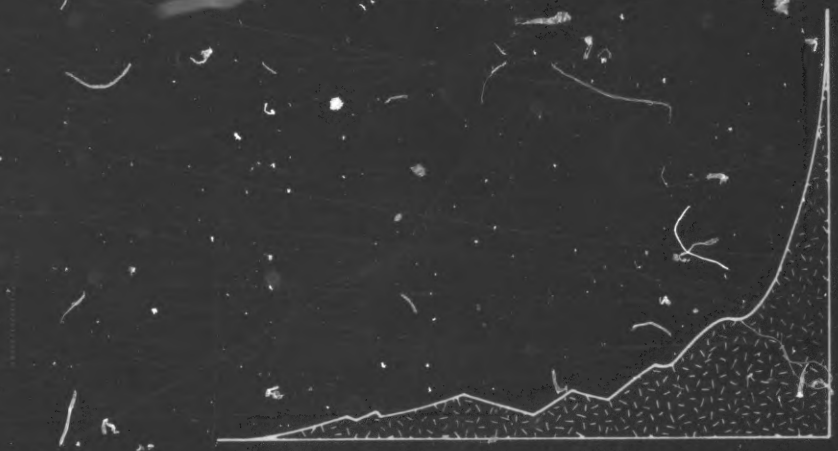

- World Population Growth Through History
- Population Growth Through Natural Increase
- Effect of Migration on Population Growth
- Population Composition by Age and Sex
- Patterns of Urbanization in the World
- Future Trends in World Population Growth

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World Population: Fundamentals of Growth was written by Mary Mederios Kent of the Population Reference Bureau. This chart series replaces PRB Chart Series I, produced in 1975. Some of the charts and readings in this series were taken from Chart Series I and revised and updated. Others were written expressly for this publication.

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- Glossary of Population Terms

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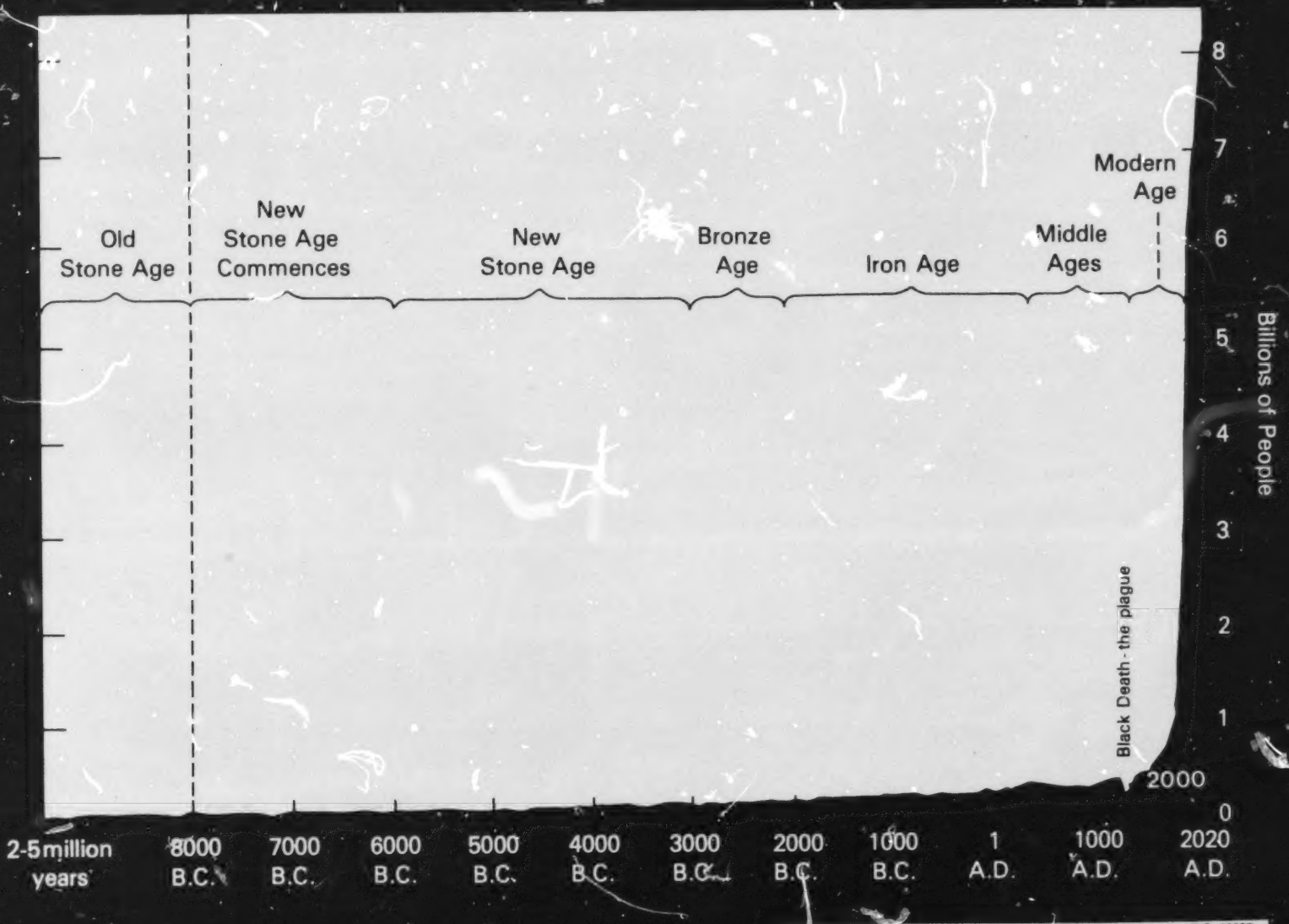
December 1984

World Population Growth Through History



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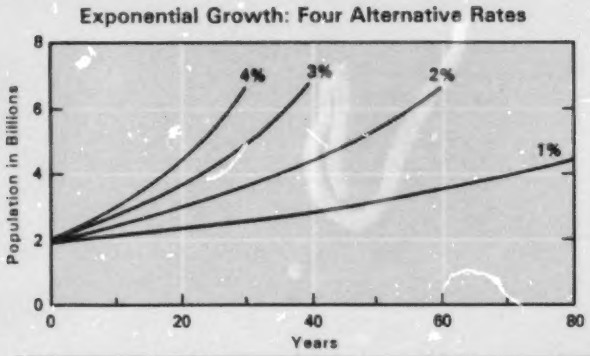


Growth Rate	Doubling Time
1%	70 years
2%	35 years
3%	23 years
4%	17 years

World Population Growth Through History

In 1984, the world had 4.8 billion inhabitants and will have more than 6 billion by the year 2000. This rapid increase is a recent phenomenon in the history of the human race. Anthropologists believe the human species dates back at least three million years, but for most of this time span these distant ancestors lived a precarious existence as hunters and gatherers. Their total numbers were small, probably less than 10 million. As agriculture was introduced communities evolved which could support more people.

World population expanded to about 300 million by 1 A.D. and continued to grow at a moderate rate. But after the beginning of the Industrial Revolution in the 18th century living standards rose and widespread famines and epidemics diminished in some regions. Population growth accelerated. The world population reached its first billion in 1800 and its second billion only 130 years later, in 1930. Then it took only 54 years to more than double world population to 4.8 billion people in 1984. If the current growth rate of 1.7 percent per year were to continue, the global population would double again in 41 years.

Exponential Growth

As long ago as 1789, Thomas Malthus studied the nature of population growth in Europe. He claimed that the population was increasing faster than food production, and he feared eventual global starvation. Of course he could not foresee how modern technology would expand food production, but his observations about how populations increase were important. Population grows exponentially (1,2,4,8,...), rather than arithmetically (1,2,3,4,...), which is why the numbers can increase so quickly.

A story said to have originated in Persia offers a classic example of exponential growth. It tells of a clever courtier who presented a beautiful chess set to his king and in return asked only that the king give him one grain of rice for the first square on the board, two grains, or double the amount, for the second square, four grains (or double again) for the third and so forth. The king, not being mathematically inclined, agreed and ordered the rice to be brought from storage. The eighth square required 128 grains, the twelfth took more than one pound. Long before reaching the 64th square every grain of rice in the kingdom had been used. Even today, the total world rice production would not be enough to meet the amount required for the final square of the chess board. The secret to understanding the arithmetic is that the rate of growth (doubling for each square) applies to an ever-expanding amount of rice, so the *number* of grains added with each doubling goes up, even though the *rate* of growth remains the same.

Similarly, if a human population begins with one million and grows at a steady 3 percent per year, it will add 30,000 persons the first year, 31,000 the second year, and 40,000 by the 10th year. At a 3 percent growth rate, its doubling time—or the number of years to double in size—is 23 years. (Doubling time for a population can be determined by dividing the growth rate into the number '70.' Therefore, 70 ÷ 3 = 23 years.)

The 1984 growth rate of 1.7 percent per year may not seem high, but when applied to the world's 4.8 billion population, it represents an increase of almost 82 million people per year. This is equivalent to adding the population of Mexico and then some to the world each year.

Most of this annual growth is occurring in a few geographic regions. Africa, Asia and Latin America—the regions which make up the "developing world"—have population growth rates of 3.0, 1.7 and 2.3 percent respectively (see the table on this page). Their populations will double in about 40 years or less if these rates continue. The developed regions—Europe, North America, and the U.S.S.R.—have growth rates which range from 0.3 percent in Europe to 0.9 percent in the U.S.S.R. For individual countries in these regions, the differences are even greater. In the mid-1980s, Kenya is growing by 4.0 percent annually while West Germany is actually losing population with a -0.2 percent growth rate.

Projections of World Population

As the chart on the other side of this page shows, world population is expected to increase to 8.1 billion by the year 2020. This is a projection of the population which assumes that the growth rate will drop slightly by 2020. A projection is not a prediction of the future population size, but a simple statement about what the future size would be, given certain assumptions about future trends in births, deaths and migration. If the growth rate does drop slightly and the world population reaches 8.1 billion by 2020, the population would have grown by almost 70 percent in 36 years.

Most of the population growth will continue to be in the developing countries of Africa, Asia, Latin America and Oceania. The population of these regions will increase by an average of 87 percent compared to only a 16 percent growth among the countries of North America, Europe and the U.S.S.R. A result of this uneven growth will be a change in the distribution of population. In 1984, 76 percent of the world's people live in the developing countries, but by the year 2020, 83 percent will.

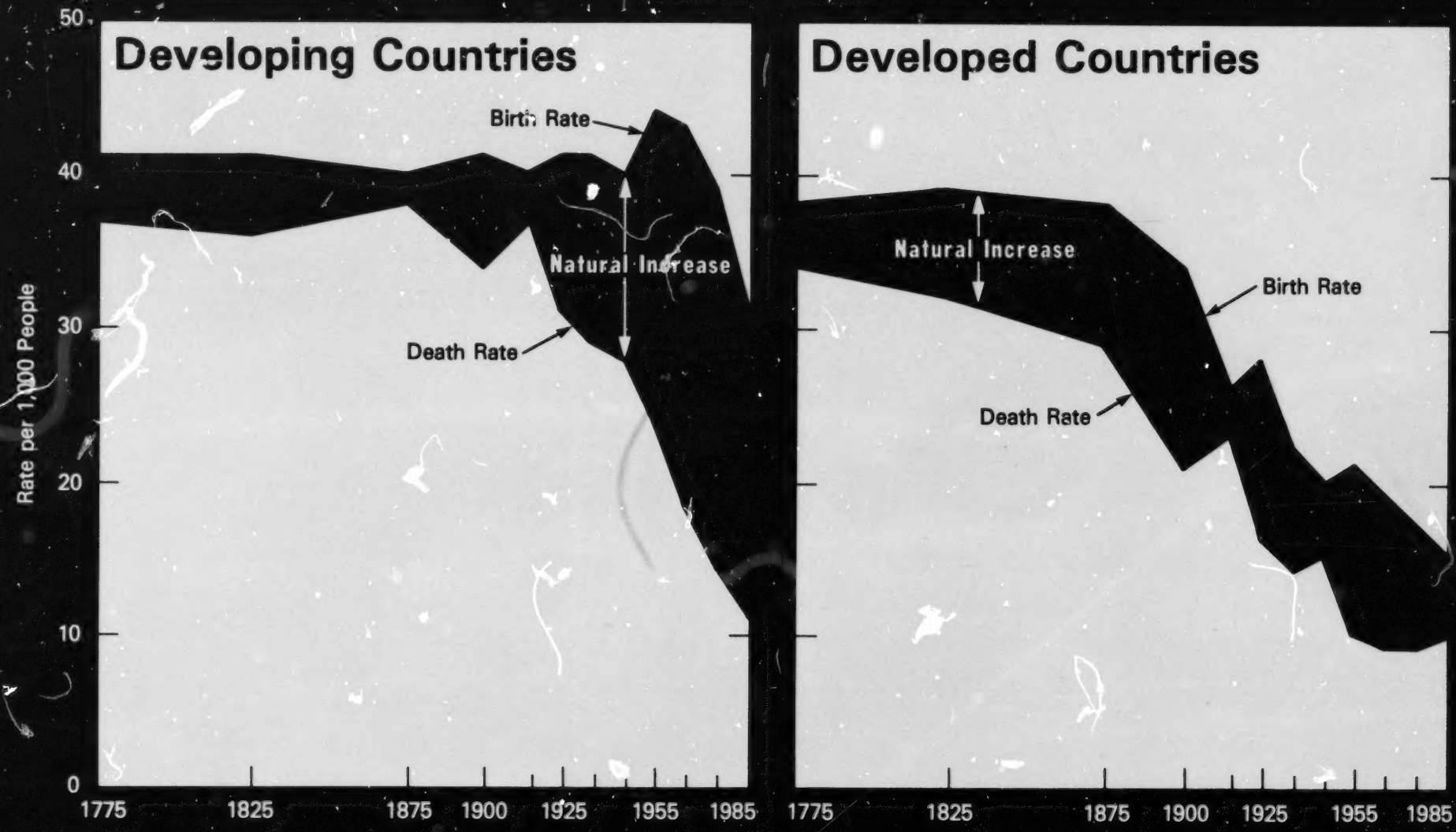
Growth Rates For World Regions: 1980-1985

Regions	Average Annual Growth Rate
World	1.7%
Africa	3.0
Asia	1.7
Latin America	2.3
North America	0.9
Europe	0.3
USSR	0.9
Oceania	1.5

Source: United Nations, World Population Prospects as Assessed in 1982, U.N. Population Division, December 1983.

Population Growth Through Natural Increase

1775 to 1985



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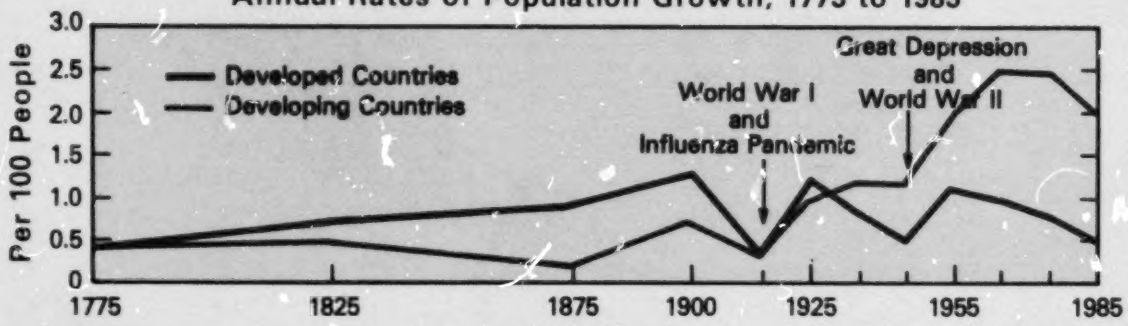
Annual Rates of Population Growth, 1775 to 1985



Sources: Ansley J. Coale "The History of Human Population," *Scientific American*, Sept. 1974, p. 47; and United Nations, "World Population Prospects as Assessed in 1982," U.N. Population Division, Dec. 1983.

Population Growth Through Natural Increase

Population change affects all our lives in a much more immediate way today than it has throughout most of human history. For the first one-half million years of human existence, the population growth rate hovered around zero, meaning the population stayed about the same size from year to year. It was not until the 1700s that the modern era of population growth began. Between 1850 and 1900, the annual growth rate reached 0.5 percent. But after that the rate escalated to 2.0 percent in the mid-1960s, then dropped to 1.7 percent in the mid-1980s.

Why has population grown at such different rates throughout history? Population change results from the interaction of three variables: births, deaths and migration. For the world, growth occurs only when there are more births than deaths; for individual countries, migration is also a factor.

The Mortality Revolution

The population grew rapidly during the Industrial Revolution not because the birth rate increased, but because the death rate began to fall. This "mortality revolution" began in the 1700s in Europe and spread to North America by the mid-1800s. Death rates fell because new technologies and increasing industrialization triggered improvements in public health and living standards. New farming and transportation technology expanded the food supply and lessened the danger of famine. Late in the 19th century, birth rates also began to fall in Europe and North America, easing the increased population growth that resulted from the lower death rates with continued fairly high birth rates.

Since 1900, both birth and death rates in the developed countries have continued to fall in tandem, with a few interruptions. The worldwide influenza pandemic in 1918 caused a temporary increase in the death rate. A slight increase in birth rates occurred after World Wars I and II, although, despite common belief, the death rate of the world was unaffected by the wars. (The wars did increase the death rates of some individual countries, however.) In the 1980s, birth and death rates in the developed world have fallen about as low as they can go, and overall growth rates appear to have leveled off. It is expected that the population of the developed world—Europe, North America, the USSR, Australia, New Zealand and Japan—will grow very slowly and even begin to decline in the future.

The Demographic Transition

Demographers have attempted to explain the experience of these developed countries as a "demographic transition" from high birth and death rates to the current low levels. This process has tended to occur in three stages. First, birth and death rates are both high so little growth occurs. Second, death rates fall due to improved living conditions, while birth rates remain high. This is a period of rapid population growth. The third stage of the transition is reached when fertility decreases to close the gap between birth and death rates, resulting again in a slower pace of population growth. All the developed countries have entered this third stage of the demographic transition and a few have gone on to a fourth stage where death rates are higher than birth rates and population has begun to decline.

In contrast to the graph of the developed countries, the developing countries—the countries of Asia, Africa and Latin America with some exceptions—had both higher birth and death rates than Europe and North America in the 1700s, and these have continued well into this century. In most of these countries, the "mortality revolution" did not begin in earnest until after World War II. And it followed a different pattern than that of the European countries. Death rates fell rapidly through the introduction of medical and public health technology; antibiotics and immunization cut down on deaths from infectious diseases, and insecticides helped control malaria. These changes did not result from economic development within the countries but were "imported" through international foreign aid. In the second stage of the "demographic transition" in this region, birth rates actually increased as a result of the better health enjoyed by the population. With declining mortality and increasing fertility rates, the population growth rate of the developing world achieved an unparalleled 2.2 percent per year. Since 1970 the birth rate of this region has fallen, but the death rate is falling faster. The population growth rate is still high, about 2.0 percent per year. The pattern of fertility and mortality decline in the developing world is different enough from that of the developed world that some analysts question whether the demographic transition theory is applicable in the Third World today.

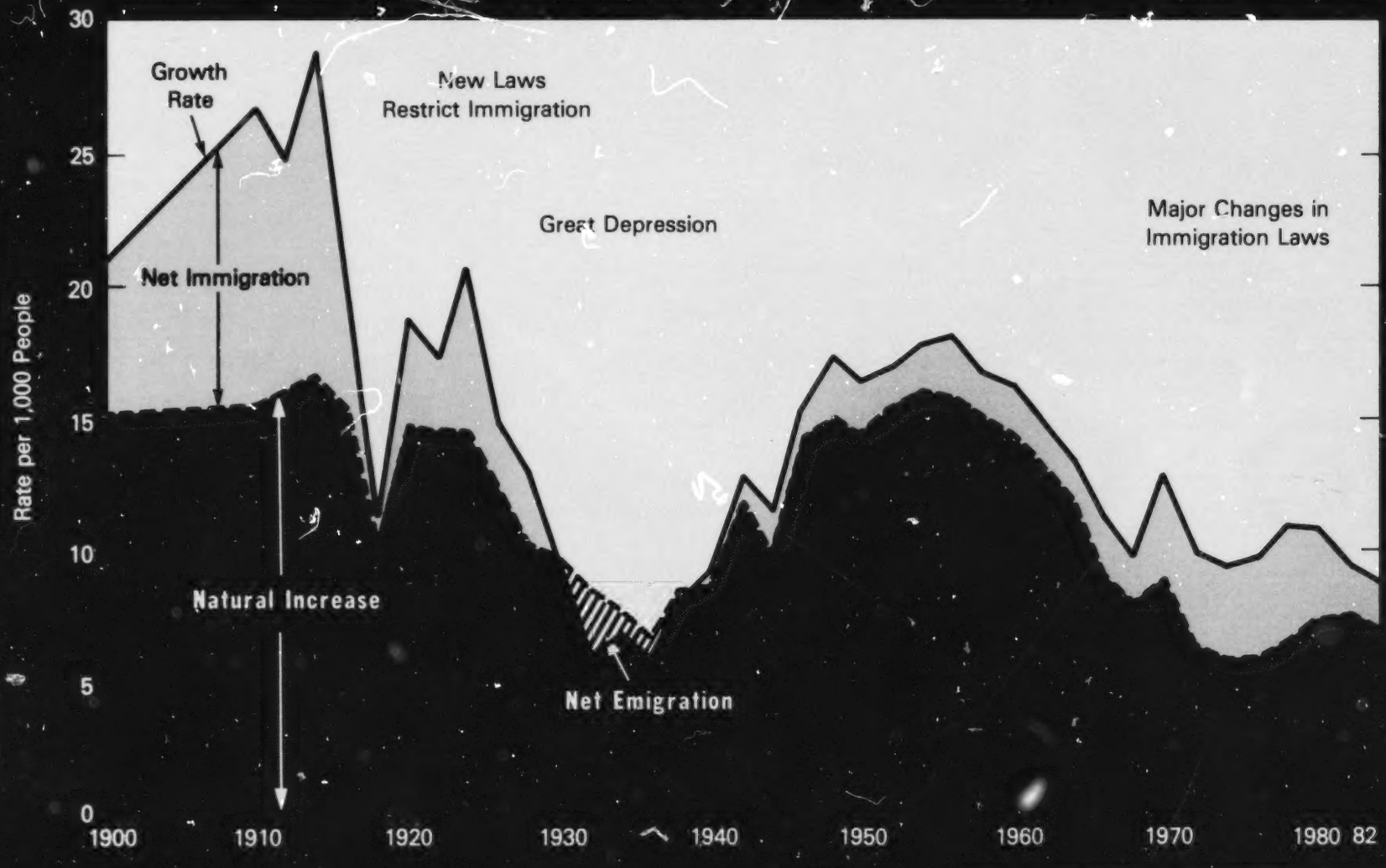
Attitudes About Family Size

Birth rates fall only when couples consciously decide to limit their family sizes. While many aspects of development seem to favor smaller families, such as the increasing cost of feeding and educating children in an urban setting and the shift away from the family as the center of employment, attitudes toward family size change slowly.

The developing world will certainly see its birth rate decline further, but until that happens it will experience rapid population growth. In the developed world, in sharp contrast, the older age structure of the populations (see "Population Composition" reading) and low fertility have brought the birth and death rates very close together. If this continues, these countries will experience zero growth, and, if the death rate ultimately exceeds the birth rate as it does in Hungary and West Germany today, negative population growth.

Effect of Migration on Population Growth

United States, 1900-1982



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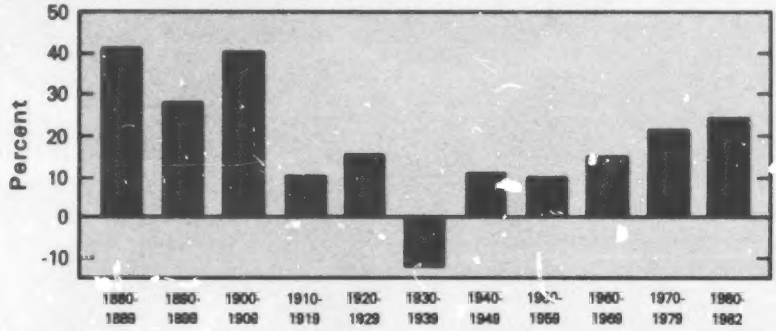
Percent of U.S. Population Change Due to Migration 1880 to 1982



Sources: *Population Estimates and Projections*, Current Population Reports Series P-25, No. 545 (1975) and No. 952 (1984), U.S. Bureau of the Census.

Effect of Migration on Population Growth

The population of a country, or any geographic area, grows through the interaction of three demographic variables: births, deaths, and migration.

This relationship is summarized by a formula known as "the balancing equation" (see the box on this page). The difference between the births and deaths in a population produces the natural increase (or decrease) of a population. Net migration is the difference between the number of persons entering a geographic area, or immigrants, and those leaving an area, or emigrants. Natural increase usually accounts for the greatest amount of growth in a population, especially within a short period of time. But over time, migration contributes more than just the number of people moving into an area because the children and grandchildren of the immigrants add several times the original number to the population base.

Almost all Americans are immigrants or descendents of immigrants who arrived here over the past 200 years. Only a small fraction of the population is related to the Native Americans who were here when the first European settlers arrived in the 1600s. Australia, Brazil, and Canada are examples of other countries whose current populations consist primarily of descendants of persons who immigrated during the past two centuries.

Impact on Population Size

According to one estimate, about 42 percent of the U.S. population in 1900 resulted from immigration during the preceeding century. But immigration was an even greater factor in growth between 1900 and 1950 when 20 million people entered the country. Natural increase added an average of 1 percent of the population per year during that period. At that rate the population would have doubled in approximately 70 years, but it took only 50 years to double. The effect of migration was to speed up the doubling time of the population by 20 years.

Even though the volume of legal migrants entering the U.S. over the past two decades is less than that of the earlier part of this century, migration now accounts for a greater proportion of population growth. This is because the natural increase component of the balancing equation began to shrink as American women began having fewer children. Between 1980 and 1983, legal immigrants and refugees entering the U.S. accounted for approximately 30 percent of U.S. population growth. Immigration could contribute an even greater share of growth in the future if the current low birth rates continue.

Components of Population Change

(Births—Deaths = Natural Increase) + (Immigrants—Emigrants = Net Migration) = Growth (or Decrease)

Why People Move

Most people move for economic reasons, but some migrate to escape political or religious persecution or simply to fulfill a personal dream. Generally we can say that migrants are seeking a better life.

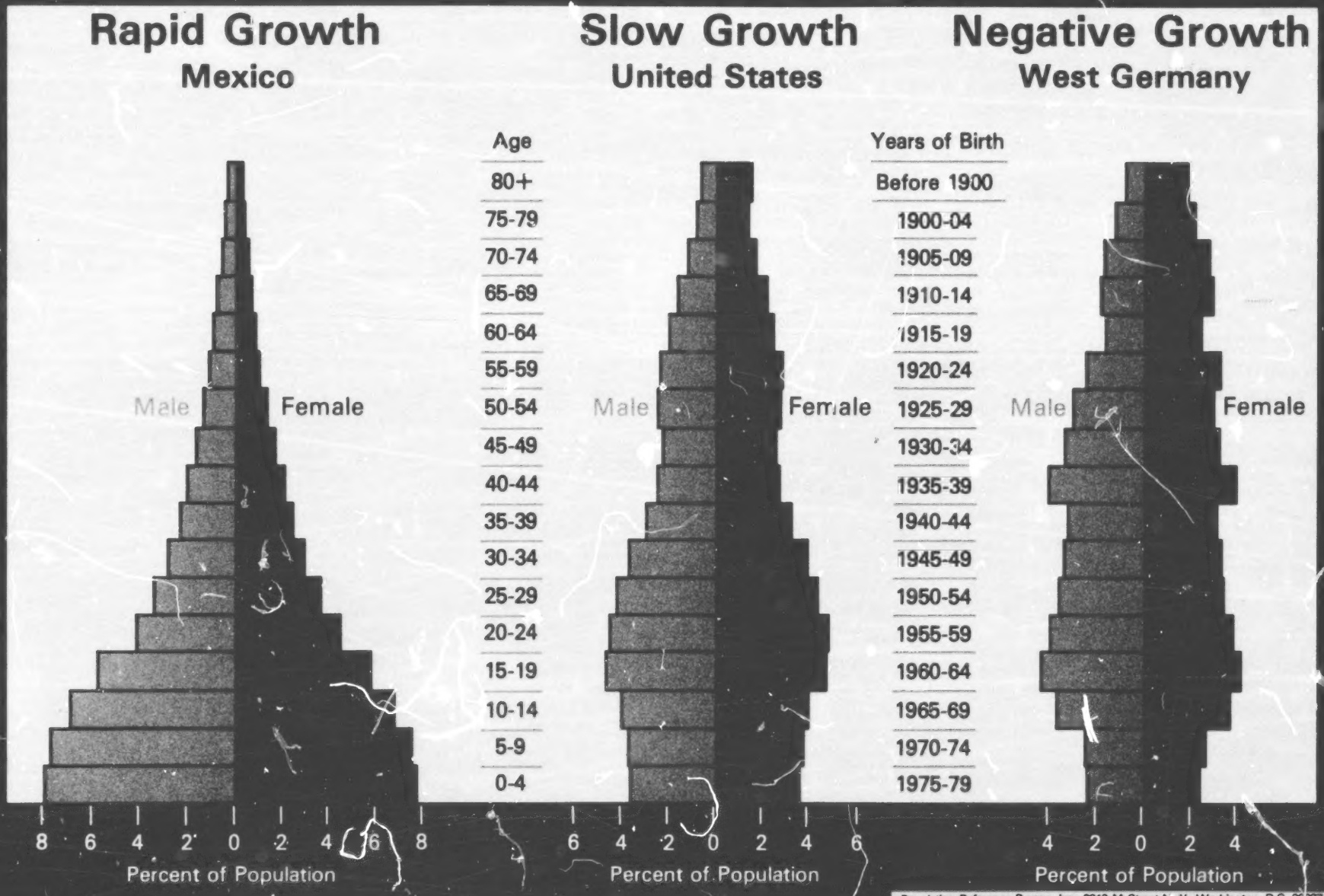
Some experts divide the many reasons people might leave their homes for a new one into "push" and "pull" factors. Push factors might be widespread unemployment, famine or war at home. The Great Depression, 1929 to 1939, is a good example of a push factor. The hard times encouraged some residents to leave the U.S., producing net emigration (more people leaving than entering the country). In the 1980s, hundreds of thousands of Africans are being "pushed" out of their homelands to neighboring countries because of famine and civil war.

Factors which "pull" a migrant may be a booming economy or free agricultural land in the area to which the migrant is moving. The vigorous economies in the oil-exporting countries in the Middle East act as a pull factor for millions of immigrants seeking employment. In the tiny oil-exporting country of Kuwait, 59 percent of the 1980 population consisted of foreigners, primarily males of working age.

Government Policies

Of the three components of population change, migration is the one most affected by legal restrictions and government policies. Because nations can control their borders, they may regulate the flow of legal immigrants. The oil-producing countries in the Middle East offered financial incentives to attract immigrants, just as the U.S. and Australia once offered free land. Currently, the U.S. limits immigration to approximately 450,000 persons annually. Additionally, a variable number of persons enter under a special refugee status. But foreigners also enter the country illegally every year. We do not know the exact count of persons migrating illegally to the U.S., but estimates range from 100,000 to 500,000 per year.

Population Composition, Age and Sex



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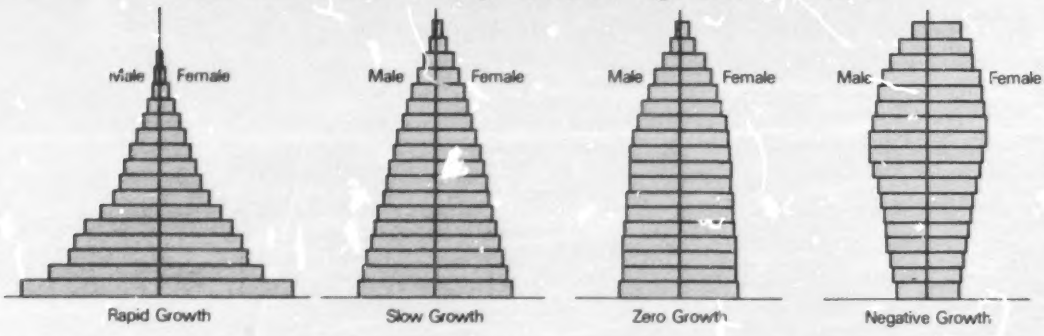


Population Composition by Age and Sex

Aside from the total size, the most important demographic characteristic of a population is its age-sex structure, or the proportion of people at each age, by sex. The age-sex structure determines the needs of the population, and the potential for future growth of the total population as well as of specific age groups. For these reasons, the age structure has significant government policy implications. A population with a large proportion of young people needs a sufficient number of schools, and as this group enters the working ages, enough jobs to accommodate them. Countries with a large proportion of older people must develop retirement systems and medical facilities to serve them. Therefore, as a population "ages," its needs change—from schools to jobs, housing and medical care.

Population Pyramids

The age-sex structure of a country is often studied through the use of population pyramids. The overall shape of the pyramid indicates the potential for future growth, as is shown in the four examples above. The horizontal bars show the percentage (or in some cases the actual numbers) of males and females in each age group.

Three representative pyramids are shown on the chart on the other side of this page. Mexico's pyramid, with its wide base and narrow top, is typical of a "young" population. This shape is the result of high birth rates which feed more and more people into the lowest bars and in turn shrink the relative proportion at the oldest ages. As the death rate declines, as it has in Mexico, more people survive to the reproductive ages. The births they have further widen the base of the pyramid. This shape is common in many developing countries which have experienced improvements in life expectancy but continue to have high birth rates. It reflects both a history of rapid population growth and the potential for future rapid growth.

The age-sex pyramid for the United States is typical of a slowly growing population. The U.S. has had declining fertility and mortality rates for most of this century. With lower fertility fewer people have entered the lowest bars of the pyramid, and as life expectancy has increased, a greater percentage of the "births" have survived until old age. As a result, the population has been aging, meaning that the proportion of older persons in the population has been growing. This trend was interrupted by the postwar baby boom, 1947 to 1964, when birth rates climbed again. (The baby boom generation is identified by the bulge in the pyramid for those aged 15 to 34 in 1980.) After 1964, birth rates continued their downward trend while life expectancy rose above 70 years. Members of the baby boom generation are now adults in the prime ages for having children. Thus, even though the birth rate per woman is lower than ever before, the population continues to grow.

A few countries are experiencing "negative growth" due to low birth rates and an old age structure coupled with minimal net immigration. West Germany is one of these. Its population pyramid reveals that there have been successively fewer persons born since 1965. Because such a large proportion of West Germans are in the older age groups there are more deaths than births every year. The net effect is "natural decrease" or a negative rate of natural increase. It is expected that more countries, particularly in Europe, will begin to experience negative growth as their populations age. In the United States, immigration will keep the natural increase above zero. If the U.S. stopped receiving international migrants, it too would begin to experience negative population growth around the year 2020.

While the birth and death rates usually determine the basic pyramid shape, migration also affects it. Typically, most migrants are in the working ages, and often more males than females migrate across national borders. In some countries receiving large numbers of immigrants, this causes a bulge in one side of the pyramid, while it can take a "bite" out of the pyramid of the countries from which they came.

Short-term fluctuations in birth and death rates which produce unusual bites or bulges in population pyramids, such as the baby boom mentioned above, can often be traced to historical events, such as wars, epidemics, economic booms or depressions. The impact of these events emphasizes the interrelationships among population change and economic, social, political, and health factors.

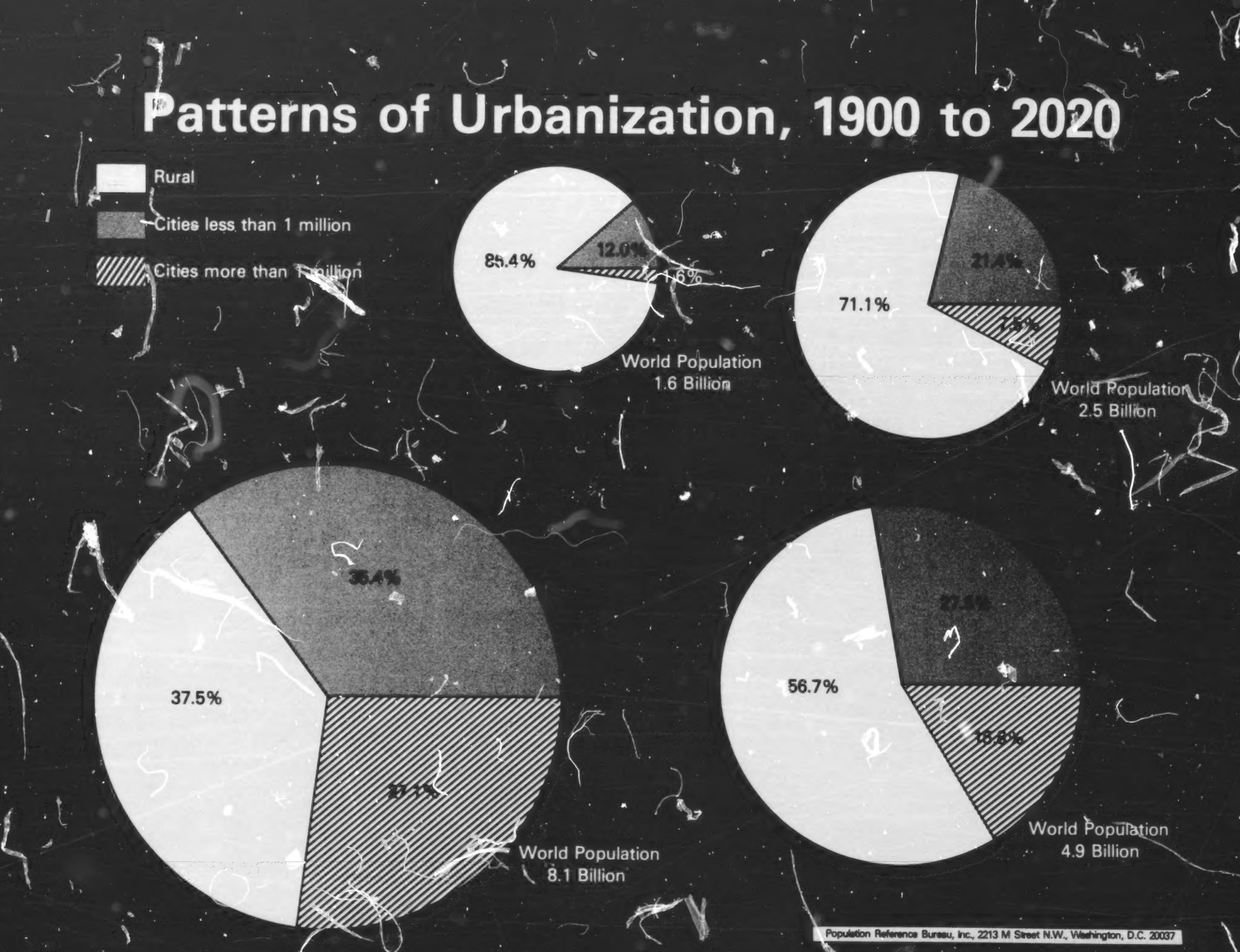
Dependency Ratios

The dependency ratio is another indicator of the age structure of a population with government policy implications. It indicates the ratio of persons in the "dependent" ages (under 15 and over 64 years of age) per 100 persons in the "economically productive" ages (15 to 64 years of age).

Dependency ratios vary widely from country to country. In many developing countries they are quite high, meaning that the working age population carries a heavy financial burden. In Bangladesh, Honduras and Kenya, a history of high birth rates have caused dependency ratios near 100 in the 1980s. This means that there are 100 persons in the dependent ages for every 100 persons in the working ages. In contrast, in developed countries such as Denmark and Japan, the dependency ratios are typically around 50. Unfortunately, those countries with the fewest economic resources often have the highest ratios of non-working to working age residents.

In the United States the dependency ratio has fluctuated widely during the 20th century. After declining steadily from 1900 to 1940, it rose over 20 percent between 1946 and 1960 with the arrival of the baby boom generation to 67. It then reversed course, dropping to 51 by 1980.

Patterns of Urbanization, 1900 to 2020



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Ten Largest Cities in the World in 1950, 1980, 2000

1950	Population (in millions)	1980	Population (in millions)	2000	Population (in millions)
1. New York-N.E. New Jersey	12.4	1. Tokyo/Yokohama	20.0	1. Mexico City	27.8
2. London	10.4	2. New York/N.E. New Jersey	17.7	2. Shanghai	25.9
3. Rhein/Ruhr	6.9	3. Mexico City	15.1	3. Tokyo/Yokohama	23.8
4. Tokyo/Yokohama	6.7	4. Shanghai	15.0	4. Beijing	22.8
5. Shanghai	5.8	5. Sao Paulo	12.8	5. Sao Paulo	21.5
6. Paris	5.5	6. Beijing	12.0	6. New York/N.E. New Jersey	19.5
7. Greater Buenos Aires	5.3	7. Los Angeles/Long Beach	10.1	7. Greater Bombay	16.3
8. Chicago/N.W. Indiana	5.0	8. Greater Buenos Aires	10.1	8. Calcutta	15.9
9. Moscow	4.8	9. London	10.0	9. Jakarta	14.3
10. Calcutta	4.7	10. Paris	9.7	10. Rio de Janeiro	14.2

Source: Estimates and Projections of Urban, Rural and City Populations, 1950-2025: The 1980 Assessment. Department of International Economic and Social Affairs, United Nations, New York, p.81.

Patterns of Urbanization in the World

Throughout most of history, the human population has lived a rural lifestyle, dependent upon agriculture and hunting for survival. In 1800, only 3 percent of the world's population lived in urban areas. By 1900, this had grown to almost 14 percent, although only 12 cities had one million or more inhabitants.

The world has experienced unprecedented rates of urban growth in recent decades. In 1984, about 40 percent of the world's people lived in urban areas. All of the developed nations are highly urbanized. Urbanization is occuring rapidly in many of the developing nations as well.

What is an urban area? An urban area may be defined on the basis of number of residents, population density, the percent of persons not dependent upon agriculture, or the provision of public utilities and services such as electricity or education. Some countries define any place with a population of 2,500 or more as urban; others set a minimum of 20,000. There are no universal standards, and generally each country develops its own set of criteria for distinguishing "urban" areas.

In comparing countries it is often helpful to look beyond the proportions of populations which are rural or urban, and instead consider the size of cities. Countries differ markedly in the distribution of their urban population. For example, although 35 percent of the population of Cameroon in central Africa is considered "urban," more than one-half of these urbanites live in towns with less than 100,000 residents. None of that country's cities contains over 600,000 persons. In Peru, 65 percent of the 1981 population was urban, and 32 percent of these people lived in just one city, Lima. In the United States, 74 percent of the 1980 population was urban, the majority living in medium-sized cities with 10,000 to 100,000 residents. Only 10 percent of Americans live in a metropolis of one million or more.

Urbanization Vs. Urban Growth

When and how did the world's population become so urbanized? The term urbanization must be distinguished from urban growth. Urban growth is the increase in the size of urban populations and it has no upper limit. A city grows through natural increase—the excess of births over deaths—and through the in-migration of people from other cities, rural areas, or countries. Urbanization refers to the proportion of the total population living in urban areas, and cannot exceed 100 percent. Urban growth and urbanization occur simultaneously in most countries, but they do not necessarily proceed at the same pace. In India, for example, cities are growing by about 3.6 percent annually, yet the percent of population in urban areas is increasing slowly, from 20 percent in 1970 to 24 percent in 1985. Brazil, with a similar urban growth rate of 3.5, is experiencing a much faster rate of urbanization. In 1970, 56 percent of the population was urban, but by 1985 this has grown to 71 percent.

The degree of urbanization among regions and countries of the world varies widely. Latin America is a fairly urbanized region, with 69 percent of the 1984 population living in towns and cities. But some countries in that region, like Bolivia and El Salvador, are less than 40 percent urban. African and Asian country populations averaged only about 25 to 35 percent urban in 1980, but Arab countries, with their vast expanses of desert, averaged 60 percent urban.

Migration or Natural Increase

The developed and developing regions of the world differ not only in the percent living in cities, but also in the way in which urbanization is occurring. During the 19th and early 20th centuries, urbanization resulted from and contributed to industrialization. New job opportunities in the cities spurred the mass movement of surplus population away from the countryside. At the same time, migrants provided cheap, plentiful labor for the emerging factories. While the proportion of the population in cities increased through rural to urban migration, high death rates in the cities slowed urban growth. High mortality resulted from crowded living conditions, the prevalence of contagious diseases, and the lack of sanitation. Until the mid-19th century, the number of deaths exceeded births in many of the larger European cities. Migration accounted for as much as 90 percent of city growth during this period.

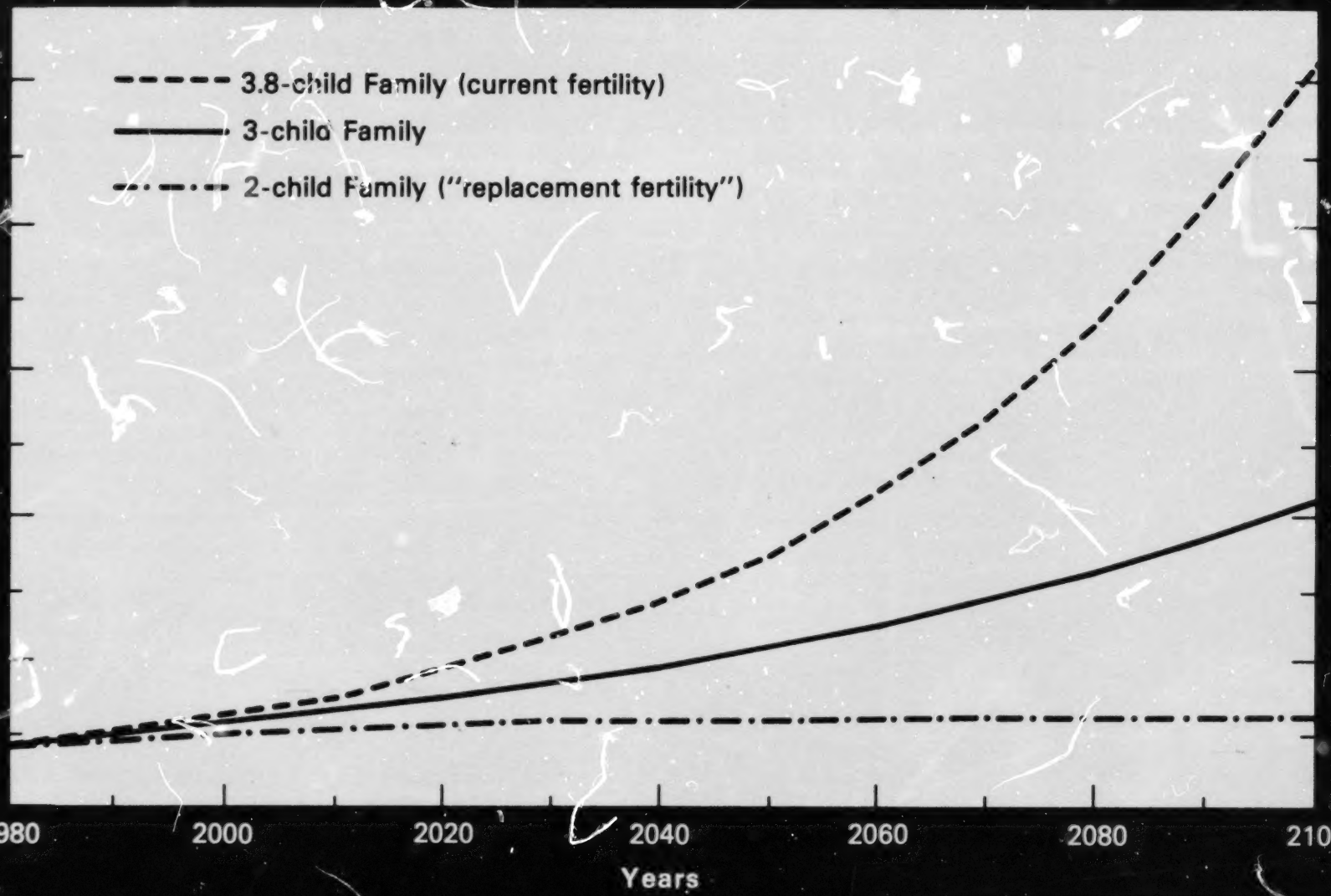
The urbanization process in most developing countries in the past 20 years contrasts with the experience of the developed countries. The availability of health services helped reduce death rates, particularly in urban areas. Because birth rates are relatively high in most developing countries, the rates of natural increase are also quite high in cities. Migration is also fueling urban growth as people leave the countryside in search of better job and educational opportunities. A recent United Nations survey showed that 60 percent of the urban growth in developing countries was due to natural increase and 40 percent from rural to urban migration or the emergence of new towns or cities.

Super Cities

In many countries cities are growing by more than 7 percent per year. Often the growth is concentrated in just a few of a nation's cities, leading to the creation of "super cities." The differences in urban growth rates between the developed and developing countries is evident from the shift in location of the world's largest cities. In 1950, only three developing country cities ranked in the top ten in the world. By 1980, this number had grown to five. By the year 2000, all but two of the top ten cities will be in the Third World.

Future Trends in World Population Growth

Three Assumptions



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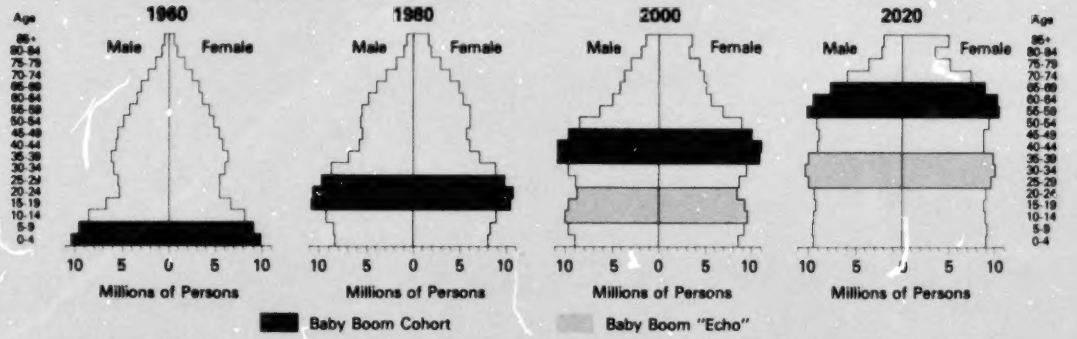
Progress of Baby Boom and Baby Boom Echo Cohorts Through U.S. Population Age-Sex Pyramid: 1960-2020



Sources: Population by Age and Sex, Current Population Reports, Series P-25, No. 441 (1970), No. 917 (1980), No. 952 (1984), U.S. Bureau of the Census.

Future Trends in World Population Growth

How large will the world's population be in the future? Of course no one really knows, but we can make educated guesses by looking at past and present trends in two of the components of population growth: births and deaths. The third component, migration, can be important in the growth of individual countries, but not of the world's population.

Population Projections

Usually estimates of future population, called projections, are calculated by choosing the most reasonable values for future birth and death rates and applying them to the current world population size and age-sex structure. But what are the most likely values of birth and death rates in the future? Since life expectancy has been improving fairly constantly since the Industrial Revolution, almost all experts assume that this trend will continue up to some biological limit. So far, average life expectancy is not expected to exceed 90 years, although some individuals do live past 100 years of age. Birth rates, however, have not followed a constant trend and are less easy to predict. And, it is the level of birth rates which will determine the future size of the world's population.

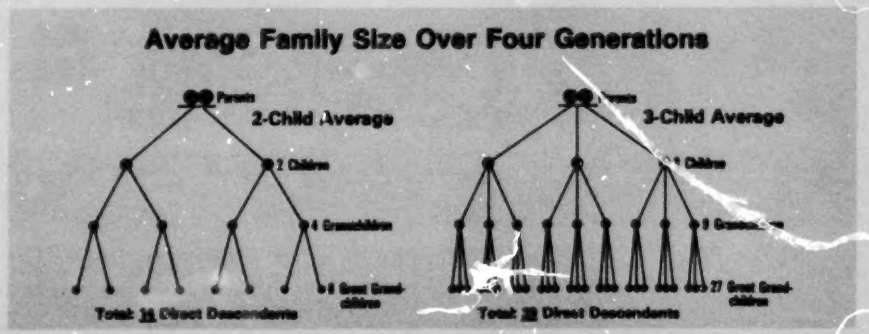
In 1984, the world's women were having 3.8 children, on the average. But this may decline to 3 or 2 children within the next 50 years. The two-child family, or "replacement fertility," is of particular interest because if couples average two children, they are only replacing themselves in the population. At this level of fertility, the population will eventually stop growing, since the number of births and the number of deaths will equal one another. The chart on the other side of this page depicts a projection of the world's population to the year 2100, under three assumptions of future fertility rates: current fertility of 3.8 children per woman and the 3- and 2-child families. The impact of small differences of only one or two children is dramatically demonstrated by the wide range in the estimates of the ultimate size of the world population under the three assumptions: from 51 billion (with 3.8 children per woman) to 6 billion (with 2 children per woman)! This is because each birth represents more than just one additional human, it is also a new mother or father who will produce her or his own 2, 3 or 4 children.

Momentum of Growth

One surprising feature of the population projection lines is that the world population will grow by 40 percent even under the assumption of replacement fertility, the two-child family. This phenomenon illustrates an important characteristic of population growth: momentum. Even though the birth rates decline, the number of births can remain high or increase, depending upon the age composition of the population. While the decline in the number of births per woman may occur immediately, the *number* of women who will have two children reflects the higher fertility of an earlier generation. Thus, a large group of women of reproductive age averaging two births can produce as many or more births than fewer women each having more offspring. Population structure changes slowly.

The United States offers a good example of this process. Between 1947 and 1964, the U.S. experienced what has been called the "post World War II baby boom." During these years the average family size grew from 2.5 to 3.8 children, and the annual number of births reached an unprecedented 4.3 million in 1957. Birth rates declined during the 1960s and women have averaged less than two children since 1970. The Americans born during 1947-1964, known as the baby boom "cohort," are shown in dark blue in the three age-sex pyramids above. The pyramids follow this cohort through various life stages: youth, working age, and retirement age. In the 1980s, the baby boomers are becoming parents, but they are averaging only 1.8 children per woman, less than the "replacement level." Even though the rate of childbearing has declined, there are many more parents producing them. The total number of births climbed to 3.7 million in 1982, producing a secondary "bulge" in the pyramid for 2000. This 'echo' effect of the baby boom shows how the birth rates of the 1950s and 1960s affect the U.S. age structure and have created momentum for future growth. This illustrates why there will be a delay between the time the world achieves a two-child family average and the time at which births will equal deaths and the population will stop growing.

Average Family Size Over Four Generations



Glossary of Population Terms

Age-sex Structure. The composition of a population as determined by the number or proportion of males and females in each age category. The age-sex structure of a population is the cumulative result of past trends in fertility, mortality, and migration. Information on age-sex composition is an essential prerequisite for the description and analysis of many other types of demographic data. See also 'population pyramid.'

Birth Rate (or Crude Birth Rate). The number of births per 1,000 population in a given year. Not to be confused with 'growth rate.'

Death Rate (or Crude Death Rate). The number of deaths per 1,000 population in a given year.

Demographic Transition. The historical shift of birth and death rates from high to low levels in a population. The decline in mortality usually precedes the decline in fertility, thus resulting in rapid population growth during the transition period.

Dependency Ratio. The ratio of the economically dependent part of the population to the productive part; arbitrarily defined as the ratio of the elderly (those 65 years and over) plus the young (those under 15 years of age) to the population in the "working ages" (those 15-64 years of age).

Developed Countries. Those countries which have higher levels of per capita income, industrialization, and modernization.

Developing Countries. Those countries which have lower levels of per capita income and modernization.

Doubling Time. The number of years required for a population of an area to double its present size, given the current rate of population growth.

Emigrant. A person who moves out of one country to live in another.

Exponential Growth. A constant rate of growth applied to a continuously growing base; for example, a snowball gathering mass; a savings account increasing at compounded interest; a population growing at 3.0 percent annually.

Fertility. The actual reproductive performance of an individual, a couple, a group, or a population.

Growth Rate. The rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration, expressed as a percentage of the base population.

Immigrant. A person who enters one country from another to take up permanent residence.

Life Expectancy. The average number of additional years a person would live if current mortality trends were to continue. Most commonly cited as life expectancy at birth.

Mortality. Deaths as a component of population change.

Natural Increase (or Decrease). The surplus (or deficit) of births over deaths in a population in a given time period.

Net Migration. The net effect of immigration and emigration on an area's population in a given time period, expressed as increase or decrease.

Pandemic. Occurring over a wide geographic area and affecting an exceptionally high proportion of the population.

Population Momentum. The tendency for population growth to continue beyond the time that replacement level fertility is achieved because of a relatively high concentration of people in their childbearing years.

Population Projection. Computation of future changes in population numbers, given certain assumptions about future trends in the rates of fertility, mortality, and migration. Demographers often issue low, medium, and high projections of the same population, based on different assumptions of how these rates will change in the future.

Population Pyramids. A special type of bar chart that shows the distribution of a population by age and sex. Most countries fall into one of three general types of pyramids: (1) Expansive - a broad base, indicating a high proportion of children and a rapid rate of population growth; (2) Constrictive - a base that is narrower than the middle of the pyramid, usually the result of recent rapid decline in fertility; (3) Stationary - a narrow base and roughly equal numbers in each age group, tapering off at the older ages, indicating a moderate proportion of children and a slow or zero rate of growth.

Sources: Arthur Haupt and Thomas T. Kane. *Population Handbook.* (Population Reference Bureau, Washington, D.C., 1978); and Robert H. Weller and Leon F. Bouvier. *Population: Demography and Policy.* (St. Martin's Press, New York, 1981).

interchange

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The Fundamentals of Population Growth

Question: When did the world's population begin to grow rapidly?

Question: Who had the higher rate of natural increase before 1900, developing countries or developed countries?

Question: If the bar chart showing the age and sex composition of a country with a very high birth rate looks like a pyramid, what does the bar chart of a country with a very low birth rate look like?

Question: Will the world population stop growing when it reaches replacement level fertility (the 2-child family)?

Do you know the answers to these questions? As population educators you probably do, but if not you'll find the answers in the chartbook *World Population: The Fundamentals of Growth* included with *Interchange* in this mailing. Your students may not know the answers or even why the questions are important, and that is why *The Fundamentals of Growth* chartbook was created for them.

World Population: Fundamentals of Growth provides the basics of population dynamics in both a visual and written form. Each chart covers a major population component, characteristic or world trend. The chart titles are:

- World Population Growth Through History
- Population Growth Through Natural Increase
- The Effect of Migration on Population Change
- Population Composition, Age and Sex
- Patterns of Urbanization, 1900-2020
- Future Trends in World Population Growth

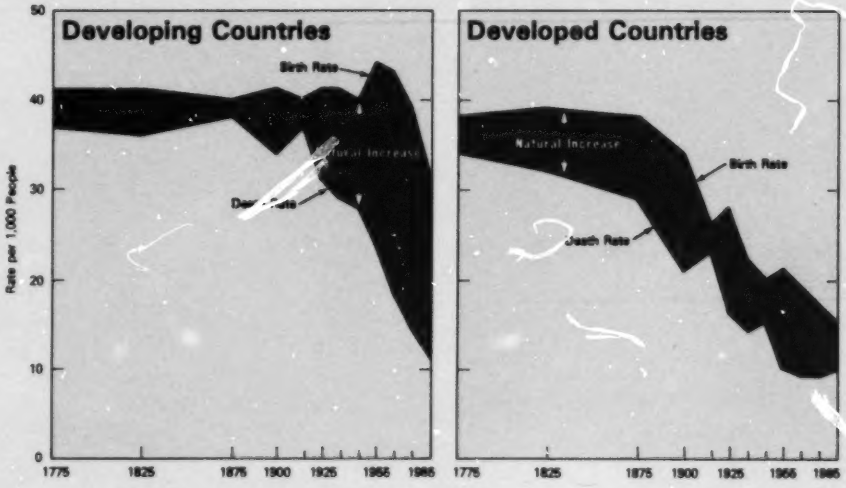
Each chart has a reading on the back which further elaborates on information presented in the chart. A glossary of population terms is provided at the end of the chartbook to assist students in building their demographic vocabulary.

PRB members will remember the PRB Chart Series I, II, III and IV. *World Population: Fundamentals of Growth* is an updated and much revised edition of the PRB Chart Series I (the "blue series"). We took the most requested charts from that series and added a few others to form a complete unit on world population.

To assist you in using the chart series in your classes, we have provided on page two student study questions to the charts and readings with answers in brackets for your use. There are two questions for each large chart and four for each accompanying reading. The questions can be used in several ways: as an "open book" exercise for individuals or groups of students; as an exam at the end of the unit; or as a bulletin board activity. If you would like to divide the lesson into smaller units, each chart is perforated at the inside margin for easy removal, making it possible to hand out individual charts to your students. Ordering information for classroom sets of the student chartbook or for the wall-size version of the charts can be found on page three or in the order form included in this mailing.

Population Growth Through Natural Increase

1775 to 1985



Inside...

➢ *Student Study Questions to World Population Charts*
➢ *New "EdVentures in Population Education"*

World Population Fundamentals of Growth

Study Questions

WORLD POPULATION GROWTH THROUGH HISTORY

Chart

1. During what "age" of human history did the world's population begin to grow rapidly?
   (The modern age.)
2. What will the population of the world be in the year 2020?
   (About 8.1 billion.)

Reading

1. What was the population of the world in 1984?
   (4.8 billion.)
2. What is the current world population growth rate?
   (1.7 percent per year.)
3. In which regions of the world will most of the future world population growth occur?
   (Africa, Asia and Latin America.)

POPULATION GROWTH THROUGH NATURAL INCREASE

Chart

1. What were the birth and death rates in the developing countries and in the developed countries in 1775?
   (Developing countries: birth rate = 41 per 1,000; death rate = 37 per 1,000. Developed countries: birth rate = 38 per 1,000; death rate = 34 per 1,000.)
2. Describe how birth rates in the developing countries and the developed countries changed from 1775 to 1985.
   (The birth rate in the developing countries fluctuated around 41 until 1945 when it increased to 44. It then began to drop, reaching 31 by 1985. In the developed countries the birth rate remained at about 39 until 1875 when it began to drop. It increased slightly in 1925 and 1955, but by 1985 it had declined to 15 births per 1,000 people.)

Reading

1. What are the components of population change?
   (Births, deaths and migration.)
2. What were the causes of the "mortality revolution" in Europe and North America?
   (Improvements in public health and living standards and new farming and transportation technology reduced the danger of death due to disease and famine.)
3. How has the demographic transition in the developing countries differed from the experience of the developed countries?
   (Death rates did not begin to drop until 1945 and then did so due to the introduction of medical and public health technology through international aid, rather than through economic development within the region. Birth rates increased initially and then began to drop, but never as fast as the death rate declined. Consequently they are still experiencing rapid population growth.)

THE EFFECT OF MIGRATION ON POPULATION CHANGE

Chart

1. During what period of U.S. history did more people emigrate than immigrate?
   (1929-1939—The Great Depression.)
2. Which has contributed more to U.S. population growth, natural increase or net migration?
   (Natural increase.)

Reading

1. What is the definition of net migration?
   (The difference between the number of persons entering a geographic area—immigrants—and those leaving an area—emigrants.)
2. During which three decades (or partial decades) in the 20th century did net migration account for more than 20 percent of U.S. population growth?
   (1900-1909, 1970-1979, and 1980-1982.)
3. List some "push" and "pull" factors which motivate people to migrate.
   (Push: unemployment, famine, war. Pull: booming economy and employment opportunities, free land.)

POPULATION COMPOSITION, AGE AND SEX

Chart

1. What percentage of the Mexican, U.S. and West German populations are 0 to 4 years old?
   (Mexico: almost 16 percent. U.S.: almost 8 percent. West Germany: over 4 percent.)
2. Which of the three countries has the greatest proportion of people aged 65 and over?
   (West Germany.)

Reading

1. How does the age-sex structure of a population determine that population's needs?
   (The proportions of people who are young, economically productive or old indicate the need for schools, new jobs, housing, social security or types of medical care.)
2. What does it mean to have a "young" population or "old" population?
   (A country with a young population has a large proportion of people in the younger ages, resulting from high birth rates. An old population has a relatively large proportion of its people in the older age groups.)
3. How can migration affect the shape of a population pyramid?
   (Migrants tend to be young and are often male. They can cause a bulge in the pyramid of the receiving country and a bite in that of the sending country.)

PATTERNS OF URBANIZATION, 1900 TO 2020

Chart

1. In 1985, do most of the world's people live in rural or urban areas?
   (Rural. 56.2 percent live in rural areas.)
2. What proportion of the world's population will live in cities with more than 1 million residents in 2020? How does that compare with the proportion of the 1900 world population living in cities over 1 million?
   (27.2 percent in 2020. 1.6 percent in 1900.)

Reading

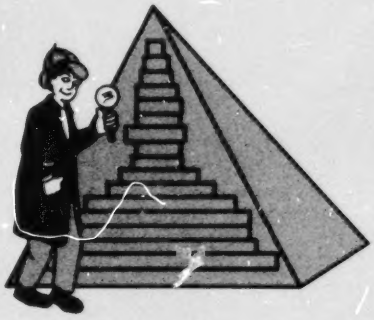
1. What is the definition of an urban area?
   (It differs from country to country. It can be based on population density, number of residents, the percentage of persons not dependent upon agriculture, or the provision of public utilities and services.)
2. What is the difference between urbanization and urban growth?
   (Urbanization refers to the proportion of the total population living in urban areas and cannot exceed 100 percent. Urban growth is the increase in the size of urban populations and it has no upper limit.)
3. Describe the differences in the patterns of urbanization in the developed and developing countries.
   (In the developed countries urbani-

(continued on page 4)

Make Population Education An EdVenture

ZPG's new teaching kit *EdVentures in Population Education* is full of lively activities explained simply and clearly. Their colorful titles illustrate a humorous approach to what can at times be a dry subject: "Mystery of the Pyramids," "How to Spend $5 million," and "ZPG Island." The 16 activities in the kit cover a wide range of population concepts and trends. They fit into several major curriculum areas, including math, social studies, science, and geography.

EdVentures teaches the mathematical calculations of population dynamics, in addition to other basics such as density, resource allocation, the immediate effects of community population issues, age structure, birth and death rates, and planning for the future. Older students learn to communicate and substantiate their own points of view by taking sides on various policy questions. Using their own family data and newspapers as sources, students begin to understand the importance of population dynamics in their lives.



"Mystery of the Pyramids" is an EdVentures activity which helps students understand the role of age structure in population dynamics.

The activities are appropriate for elementary or secondary school students. There is always something to fit the mood of the class. Learning about population can occupy a full class period, or add to coursework in related curriculum areas. These activities get concepts across faster and generate more fun than a simple presentation of facts.

In addition to the classroom-ready activities the kit provides lists of other sources of population information, including background readings for both teachers and students, audiovisual aids, and the names of organizations with services and publications in the field. The kit also includes population education publications from other organizations. Introductory price $15.00. Available from Zero Population Growth, 1346 Connecticut Avenue, N.W. Washington, D.C. 20036.

Charts Charts Charts

Wall charts of the new series *World Population: Fundamentals of Growth* will be available February 1. These 22" x 17" two-color charts come in a set of six for $12.50. Special discount rates are available to *Interchange* readers who order before April 1, 1985. These are:

1 set	$10.00
2-10 sets	$8.00 per set
11-50 sets	$5.60 per set
51 or more	$4.00 per set

Classroom sets of the student chartbook are available at the following prices:

1 copy	$2.00
2-10 copies	$1.50 each
11-50 copies	$1.00 each
51 or more	$.75 each

Use the order form included in this mailing or send the number of wall chart sets and student chartbooks you'd like with your check (include $1.00 shipping/handling on all orders under $20.00) to: Circulation, PRB, 2213 M St. NW, Washington, DC 20037.

Great Decisions About Population Change

Population Growth: Critical North-South Issue? is one of eight topics which will be the focus of discussions all over the U.S. this winter, as part of the Great Decisions '85 program sponsored by the nonpartisan Foreign Policy Association. The FPA is the "oldest, largest citizen-education program on foreign affairs." Taking place at schools and colleges, and libraries, the discussions will enable people to learn about important population issues and discuss them with panelists. They are being timed to coincide roughly with Great Decisions '85 TV programs, hosted by Edwin Newman, to be broadcast over public television starting Feb. 10. "Population Growth: Critical North-South Issue?" is the name of a chapter in the book, *Great Decisions '85.* (This is the latest issue of the Foreign Policy Association's annual study and discussion guide.) The chapter traces the history of population growth, the political and economic impact of rapid growth in less developed countries, family planning strategies, and U.S. population policy.

The chapter emphasizes population composition—by age and ethnic group—and the impact that this has had throughout history. The discussion includes examples of national and international instances in which population composition and the ratio of one group to another have determined the politics of the area.

A section on urbanization mentions the dissatisfaction of many governments of developing countries with the concentration of their populace in overcrowded cities. It is in the new "megacities" that the contrast of riches and squalor is most obvious.

The chapter also covers women and the relation of their education to maternal mortality and use of birth control. In many parts of the world a woman's status is dependent on the number of children she has. A section on China goes over this and some of the reasons for and results of the one-child policy there.

Today's combination of high birth rates, low death rates, and an extremely large existing population is unique in human history; therefore, population policy is of tremendous importance. For the United States, foreign aid and immigration are the most pressing issues. *Great Decisions '85* will assist

(continued on page 4)

Teacher Resources

►**The Teachers Clearinghouse for Science and Society Education Newsletter** has just produced a special supplement called "Population Education Today for a Better Tomorrow." It starts off with several articles about global and local population issues, and moves on to include a directory of population-related organizations and their addresses. Also packed into these 14 pages are descriptions of various teaching kits and information about film, slide, and video rentals and purchases. A bibliography and a listing of relevant publications and articles end the supplement.

Available free of charge from the Teachers Clearinghouse for Science and Society Education, 210 East 77th St., New York, NY 10021.

►**Minerals—Foundations of Society** is a new book from the Natural Resources Committee of the Montgomery County, Maryland League of Women Voters. It presents an overview of the importance of minerals in human history and today's international economy. It covers such issues as the role of government and industry in resource development, the environment and use of public lands, and the increasing demands of rapidly growing populations. *Minerals,* by Ann Dorr, is a 56-page paperback book with numerous charts and tables. A slide program with 120 slides, script and cassette tape, is also available.

Write: League of Women Voters of Montgomery County, Maryland, Inc., 12216 Parklawn Dr., Rockville, Maryland 20852.

Great Decisions

continued from page 3

students of all ages in understanding these issues.

Great Decisions '85 is available as a 96-page paperback for $6.00 plus $1.00 for postage and handling, prepaid. (Discounts are available for quantity orders.) Also available are a bibliography of 150 titles on the subjects covered in *Great Decisions* ($2.00); a teacher's guide with lesson plans, teaching strategies, glossaries and evaluation suggestions ($2.00); and videotapes of the television programs. A free brochure describing Great Decisions '85 is available. Write: Foreign Policy Association, 205 Lexington Ave., New York, N.Y. 20016. (212) 481-8450.

Chart Study Questions

continued from page 2

zation occurred with industrialization. Cities grew through migration. In the developing countries, natural increase contributes slightly more than migration to urban growth.)

FUTURE TRENDS IN WORLD POPULATION GROWTH

Chart

1. What would the world population be in the year 2100 if world fertility remained at the 3.8-child family average? What would it be in 2100 if world fertility were at replacement level today and remained so until 2100?

   (51 billion people. 6 billion people.)

2. Will the world population continue to grow after replacement fertility (2-child family average) has been achieved?

   (Yes. If replacement fertility were reached today, the world population would grow for about 70 years, adding another 2 billion people.)

Reading

1. What is a population projection?

   (An estimate of future population size which is based on assumptions about future birth, death and migration rates.)

2. Why is the 2-child family average called replacement fertility?

   (Because there are two children to replace the two parents.)

3. What was the baby boom in the U.S. and what impact does it continue to have on the size of the U.S. population?

   (The baby boom was the large increase in births in the U.S. from 1947 to 1964. The baby boomers are having small families now, but there are so many of them in that group that the number of births is increasing. This is causing a new bulge in the population pyramid for 2000.)

PRB Materials and Memberships

Are you interested in rounding out your INTERCHANGE collection? Back issues of INTERCHANGE and TEACHING TOOLS are available for $2.00 each; two or more copies, $1.75 each. Titles include:

- "U.S. Population Data Teaching Package," March 1983
- "Growing Old in America," September 1981
- "World Population: Toward the Next Century," November 1981
- "Children: A Constant Concern," with the 1982 World's Children Data Sheet, April 1982
- "Immigration: Questions and Answers," July 1982
- "Teacher's Guide to the Future," December 1982
- "The Environment to Come: A Global Summary," March 1983
- "Food and Population: A Global Concern," December 1983.
- "The American Family: Changes and Challenges," October 1984

If you find INTERCHANGE interesting and useful, you would probably enjoy receiving other Population Reference Bureau publications. PRB has special memberships for educators. A $10.00 Associate Educator Member receives four issues of INTERCHANGE, two TEACHING TOOLS, the WORLD POPULATION DATA SHEET and the U.S. POPULATION DATA SHEET. The $20.00 Educator Member receives all of the above in addition to four POPULATION BULLETINS, in-depth studies of one population topic, and eleven issues of POPULATION TODAY, the population newsmagazine.

To join, simply send your name, address (and school affiliation if different from address), and check to: Population Reference Bureau, P.O. Box 35012, Washington, D.C. 20013.

Interchange is . . .

a publication of the Population Reference Bureau, published quarterly during the academic year. This issue was written by Patricia Cancellier and Margaret Greene. The purpose of the newsletter is to further the goal of infusing population materials into U.S. schools by (1) presenting information on population-related issues; (2) distributing classroom materials; (3) reviewing developments in the field of population education. Interchange depends upon an exchange of information and ideas and thus openly solicits correspondence from its readers.

The Population Reference Bureau, Inc., 2213 M St. N.W., Washington, D.C. 20037, is a nonprofit education organization established in 1929. The Bureau is a source of information on the facts and implications of national and world population trends.

1985 World Population Data Sheet

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Region or Country[1]	Population Estimate, mid-1985 (millions)[2]	Crude Birth Rate[3]	Crude Death Rate[3]	Natural Increase (annual, %)[3]	Population "Doubling Time" in Years (at current rate)[4]	Population Projected to 2000 (millions)[4]	Population Projected to 2020 (millions)[4]	Infant Mortality Rate[5]	Total Fertility Rate[6]	%Population Under Age 15/ Over Age 64[7]	Life Expectancy at Birth (years)[8]	Urban Population (%)[9]	Per Capita GNP, 1983 (US$)[10]	Total Area (1000's of sq. miles)/ Percent Cultivated[11]
WORLD	4,845	27	11	1.7	41	6,135	7,760	81	3.7	35/6	62	41	$2,760	51,720/11
MORE DEVELOPED	1,174	15	9	0.6	118	1,271	1,351	18	2.0	23/12	73	72	9,380	21,344/12
LESS DEVELOPED	3,671	31	11	2.0	34	4,863	6,409	90	4.2	39/4	58	31	700	30,375/10
LESS DEVELOPED (Excl. China)	2,629	36	12	2.4	29	3,666	5,121	101	5.0	41/4	55	34	880	26,670/10
AFRICA	551	45	16	2.9	24	789	1,433	110	6.3	45/3	50	31	750	11,711/6
NORTHERN AFRICA	128	41	12	2.9	24	190	282	97	6.0	43/4	56	42	1,190	3,291/3
Algeria	22.2	45	12	3.3	21	35.5	53.5	109	7.0	46/4	60	52	2,400	919.6/3
Egypt	48.3	37	10	2.7	26	67.3	94.2	80	5.3	40/4	57	44	700	386.7/2
Libya	4.0	46	11	3.5	20	6.7	11.5	92	7.2	46/2	58	64	7,500	679.4/1
Morocco	24.3	41	12	2.9	24	37.5	58.8	99	5.9	46/3	58	42	720	172.4/19
Sudan	21.8	46	17	2.9	24	33.2	51.3	118	6.6	45/3	48	21	400	967.5/5
Tunisia	7.2	33	10	2.3	30	9.7	12.9	85	4.9	40/4	61	52	1,290	63.2/31
WESTERN AFRICA	166	48	18	3.0	23	272	454	118	6.4	47/3	48	29	580	2,372/10
Benin	4.0	51	23	2.8	25	6.3	10.9	149	7.0	49/5	43	39	290	43.5/16
Burkina Faso (Upper Volta)	6.9	48	22	2.6	27	10.5	17.7	149	6.5	44/3	44	8	180	105.9/10
Cape Verde	0.3	36	9	2.7	26	0.4	0.5	77	4.5	31/4	67	20	360	1.6/10
Gambia	0.8	49	29	2.1	35	1.0	1.6	193	6.4	43/3	35	21	290	4.4/14
Ghana	14.3	47	15	3.2	22	22.9	36.5	107	6.5	46/3	52	40	320	92.1/12
Guinea	6.1	47	23	2.4	29	8.9	14.3	147	6.2	43/3	40	22	300	94.9/6
Guinea-Bissau	0.9	41	22	1.9	36	1.2	1.8	143	5.4	44/5	43	27	180	13.9/8
Ivory Coast	10.1	46	18	2.8	25	16.0	29.0	122	6.7	45/3	47	42	720	124.5/12
Liberia	2.2	46	15	3.1	22	3.7	6.9	112	6.7	47/3	49	39	470	43.0/3
Mali	7.7	49	21	2.8	25	11.4	19.2	137	6.7	46/3	42	18	150	478.8/2
Mauritania	1.9	50	21	2.9	24	3.0	5.3	137	6.9	46/3	44	35	440	398.0/2
Niger	6.5	51	23	2.8	25	10.5	18.4	140	7.1	47/3	43	16	240	489.2/3
Nigeria	91.2	48	17	3.1	22	156.5	258.0	105	6.3	48/2	50	28	760	356.7/33
Senegal	6.7	50	19	3.1	22	10.5	17.9	141	7.1	45/3	43	42	440	75.7/27
Sierra Leone	3.6	47	30	1.7	41	4.9	7.3	200	6.1	41/3	34	28	380	27.7/25
Togo	3.0	45	17	2.8	25	4.7	8.3	113	6.1	44/3	49	20	280	21.9/25
EASTERN AFRICA	159	48	17	3.1	23	258	452	109	5.8	47/3	49	17	300	2,454/7
Burundi	4.6	48	21	2.7	26	7.0	10.4	137	6.4	44/3	44	7	240	10.7/47
Comoros	0.5	46	16	3.0	23	0.7	1.0	88	6.3	46/3	50	19	–	0.8/42
Djibouti	0.3	46	20	2.6	27	0.4	0.7	122	6.8	45/3	47	74	–	8.5/0
Ethiopia	36.0	43	22	2.1	33	54.8	88.5	142	6.7	45/3	43	15	140	471.8/11
Kenya	20.2	54	13	4.1	17	37.3	68.0	82	8.0	52/2	58	16	340	225.0/4
Madagascar	10.0	45	17	2.8	25	15.6	26.8	67	6.4	44/3	50	22	290	226.7/5
Malawi	7.1	52	20	3.2	22	11.4	20.5	165	6.9	48/2	46	12	210	45.7/20
Mauritius	1.0	21	7	1.5	47	1.3	1.6	26.9	2.7	33/4	67	43	1,150	0.7/58
Mozambique	13.9	45	17	2.8	25	21.4	36.0	110	6.1	46/5	49	13	–	309.5/4
Reunion	0.5	23	6	1.7	42	0.7	0.8	14	2.6	33/5	66	41	3,710	1.0/22
Rwanda	6.3	53	17	3.6	19	10.7	20.3	110	7.3	46/3	48	5	270	10.2/39
Seychelles	0.1	26	7	1.9	37	0.1	0.1	14.4	4.1	37/7	70	37	2,400	0.1/21
Somalia	6.5	47	21	2.6	27	9.1	14.1	143	6.5	44/4	43	34	250	246.2/2
Tanzania	21.7	50	15	3.5	20	37.3	70.7	98	7.1	46/4	53	14	240	364.9/6
Uganda	14.7	50	15	3.5	20	24.5	43.7	94	6.9	48/2	52	14	220	91.1/25
Zambia	6.8	48	15	3.3	21	10.9	20.7	101	6.8	47/3	51	43	580	290.6/7
Zimbabwe	8.6	47	12	3.5	20	14.5	28.1	70	6.6	48/3	55	24	740	150.8/7

MIDDLE AFRICA	62	46	18	2.7	26	95	163	119	6.1	44/3	48	34	420	2.553/4
Angola	7.9	47	22	2.5	28	12.0	20.2	149	6.4	45/3	42	24	–	481.4/3
Cameroon	9.7	44	18	2.6	27	14.4	23.1	117	6.5	43/4	48	42	800	183.6/15
Central African Republic	2.7	46	22	2.4	29	3.9	6.3	143	5.9	43/4	43	41	280	240.5/3
Chad	5.2	44	23	2.1	33	7.6	12.4	143	5.9	42/4	43	22	–	495.8/2
Congo	1.7	44	19	2.5	28	2.6	4.5	124	6.0	44/3	47	48	1.270	132.0/2
Equatorial Guinea	0.3	43	21	2.2	32	0.4	0.6	137	5.7	41/4	44	60	–	10.8/8
Gabon	1.0	35	18	1.7	41	1.6	2.8	112	4.7	36/6	49	41	4.250	103.3/2
Sao Tome and Principe	0.1	39	10	2.9	24	0.1	0.1	69.2	5.4	38/6	65	32	310	0.4/38
Zaire	33.1	45	16	2.9	24	52.4	93.3	106	6.1	45/3	50	34	160	905.6/3
SOUTHERN AFRICA	37	36	14	2.2	31	53	82	94	5.2	39/4	53	52	2.280	1.040/6
Botswana	1.1	50	13	3.7	19	1.8	3.5	79	6.6	50/2	54	16	920	231.8/2
Lesotho	1.5	42	16	2.6	27	2.3	3.7	110	5.8	42/4	49	6	470	11.7/10
Namibia	1.1	45	17	2.8	25	1.7	2.8	115	5.9	44/3	48	51	1.760	318.3/1
South Africa	32.5	35	14	2.1	33	46.5	70.1	92	5.1	38/4	54	56	2.450	471.4/11
Swaziland	0.6	48	17	3.1	22	1.0	1.8	129	6.5	46/3	47	26	890	6.7/8
ASIA	2.829	28	10	1.8	39	3.562	4.340	87	3.7	37/4	68	27	940	10.659/17
ASIA (Excl. China)	1.787	33	12	2.2	32	2.365	3.052	103	4.6	39/4	57	31	1.360	6.954/20
SOUTHWEST ASIA	114	39	11	2.8	25	171	253	94	5.9	42/4	61	53	3.500	1.754/10
Bahrain	0.4	32	5	2.7	26	0.7	1.0	37	4.6	33/2	67	81	10.360	0.2/3
Cyprus	0.7	21	9	1.2	57	0.7	0.9	17	2.5	25/10	74	53	3.720	3.6/47
Gaza	0.5	46	8	3.8	18	0.7	0.9	109	6.8	48/3	55	90	–	0.1/45
Iraq	15.5	46	13	3.3	21	24.9	39.3	72	6.7	49/4	59	68	–	167.9/13
Israel	4.2	24	6	1.8	39	5.2	6.6	14.2	3.1	33/9	78	87	5.360	8.0/20
Jordan	3.6	46	8	3.8	18	6.6	12.3	63	7.4	51/3	64	60	1.710	37.7/4
Kuwait	1.9	35	3	3.2	22	3.1	4.7	22.8	6.2	40/1	71	90	18.180	6.9/2
Lebanon	2.6	29	9	2.1	34	3.5	5.1	48	3.8	38/5	65	76	–	4.0/29
Oman	1.2	47	16	3.1	22	1.9	3.0	122	7.1	44/3	50	7	6.240	82.0/2
Qatar	0.3	31	3	2.8	25	0.5	0.7	45	6.8	33/2	71	86	21.170	4.2/2
Saudi Arabia	11.2	42	12	3.0	23	18.9	30.6	103	7.7	43/3	56	70	12.180	830.0/1
Syria	10.6	47	7	3.9	18	18.1	29.5	57	7.1	47/4	62	47	1.680	71.5/11
Turkey	52.1	35	10	2.5	28	71.3	97.0	110	5.1	39/5	63	45	1.230	301.4/35
United Arab Emirates	1.3	27	4	2.3	30	1.9	2.5	45	5.9	26/2	71	81	21.340	32.3/2
Yemen, North	6.1	48	21	2.7	26	9.1	14.0	154	6.8	49/3	44	15	510	75.3/14
Yemen, South	2.1	48	19	2.9	24	3.3	5.2	138	6.9	49/4	44	37	510	128.6/1
MIDDLE SOUTH ASIA	1.058	37	13	2.3	30	1.412	1.834	120	5.0	41/3	52	34	260	2.620/33
Afghanistan	14.7	48	23	2.5	28	24.3	34.2	205	6.9	45/4	37	16	–	250.0/12
Bangladesh	101.5	45	17	2.8	25	146.2	206.6	133	6.4	47/3	48	15	130	55.6/63
Bhutan	1.4	38	18	2.0	35	1.9	2.5	144	5.5	40/3	46	5	–	18.1/2
India	762.2	34	13	2.2	32	990.6	1.245.6	118	4.5	39/3	53	23	260	1.269.3/52
Iran	45.1	41	10	3.0	23	65.5	90.8	101	5.6	43/4	60	50	–	636.3/8
Maldives	0.2	43	13	3.0	23	0.3	0.4	108	6.5	45/2	52	20	–	0.1/10
Nepal	17.0	42	18	2.4	29	23.7	33.0	144	6.3	41/3	46	6	170	54.4/17
Pakistan	99.2	43	15	2.7	25	139.0	195.7	120	6.4	44/3	50	29	390	310.4/25
Sri Lanka	16.4	27	6	2.1	33	20.8	25.4	34.4	3.7	35/4	68	22	330	25.3/33
SOUTHEAST ASIA	404	32	10	2.2	31	542	702	79	4.5	40/3	59	24	710	1.735/17
Brunei	0.2	28	4	2.4	29	0.3	0.4	15	4.4	38/3	71	64	21.140	2.2/2
Burma	36.9	37	15	2.2	32	51.6	72.2	94	5.3	42/4	55	24	180	261.2/15
Democratic Kampuchea	6.2	32	11	2.1	33	8.4	10.2	160	4.7	33/3	43	16	–	69.9/17
East Timor	0.7	48	23	2.5	28	0.9	1.1	183	5.8	35/3	40	12	–	5.7/5
Indonesia	168.4	34	12	2.2	32	226.9	293.2	87	4.4	41/3	55	22	560	735.4/10
Laos	3.8	41	18	2.3	30	5.3	7.5	122	6.0	43/3	44	16	–	91.4/4
Malaysia	15.7	29	7	2.2	32	20.7	26.1	29	4.0	37/4	67	32	1.870	127.7/13
Philippines	56.8	32	7	2.5	28	77.7	101.5	50	4.8	43/3	64	37	760	115.8/39
Singapore	2.6	16	5	1.1	64	3.0	3.2	9.4	1.7	25/5	71	100	6.620	1.2/10
Thailand	52.7	25	6	1.9	36	67.6	86.0	51	3.9	38/3	63	17	810	198.5/37
Vietnam	60.5	34	9	2.5	28	79.5	102.2	90	4.7	41/4	66	19	–	27.2/19

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	Pop. 1985	Birth Rate	Death Rate	Nat. Inc.	Doub. Time	Pop. 2000	Pop. 2020	Inf. Mort.	TFR	<15/>64	Life Expect.	% Urban	GNP p.c.	Area
EAST ASIA	1,292	18	8	1.1	65	1,437	1,550	35	2.1	32/5	66	29	1,360	4,551/10
China	1,042.0	19	8	1.1	65	1,197.0	1,288.0	38	2.1	34/5	65	21	290	3,705.4/11
Hong Kong	5.5	15	5	1.0	67	6.7	7.6	9.9	2.0	24/7	76	92	6,000	0.4/8
Japan	120.8	13	6	0.6	110	128.1	127.2	6.2	1.8	22/10	77	76	10,100	143.7/13
Korea, North	20.1	31	7	2.3	30	27.3	35.8	32	4.0	38/4	63	64	–	46.5/19
Korea, South	42.7	23	6	1.7	41	51.7	59.4	29	2.6	32/4	66	57	2,010	38.0/22
Macao	0.3	25	7	1.8	38	0.4	0.5	38	3.8	31/5	68	97	2,560	z/0
Mongolia	1.9	34	7	2.7	26	2.7	3.7	50	4.8	41/3	65	51	–	604.2/1
Taiwan	19.2	21	5	1.6	44	23.4	28.0	8.9	2.3	31/5	73	71	–	12.5/25
NORTH AMERICA	264	15	8	0.7	99	297	330	10	1.8	22/12	75	74	13,890	7,599/12
Canada	25.4	15	7	0.8	90	29.4	33.1	9.1	1.7	22/10	75	76	12,000	3,851.8/5
United States	238.9	16	9	0.7	100	268.0	296.6	10.5	1.8	22/12	75	74	14,090	3,615.1/20

April 1985

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LATIN AMERICA	406	31	8	2.3	30	554	752	62	4.2	38/5	65	66	$1,890	7,935/9
MIDDLE AMERICA	105	33	6	2.7	26	151	211	55	4.9	43/4	65	63	1,940	963/12
Belize	0.2	32	7	2.5	28	0.2	0.3	27	4.5	44/4	70	50	1,140	8.9/2
Costa Rica	2.6	31	4	2.7	26	3.6	4.8	19.3	3.5	37/4	73	48	1,020	19.6/13
El Salvador	5.1	28	6	2.1	33	7.8	12.4	42.2	5.6	45/3	65	39	710	8.1/34
Guatemala	8.0	43	8	3.5	20	12.2	19.7	62.4	6.1	46/3	59	39	1,120	42.0/16
Honduras	4.4	44	10	3.4	20	7.1	12.2	82	6.5	47/3	60	37	670	43.3/16
Mexico	79.7	32	6	2.6	27	112.8	150.7	53	4.7	42/4	66	70	2,240	761.6/12
Nicaragua	3.0	44	10	3.4	20	4.9	7.8	76	5.9	47/3	60	53	900	50.2/10
Panama	2.0	25	5	2.0	34	2.7	3.5	26	3.5	38/4	71	49	2,070	29.8/8
CARIBBEAN	31	25	8	1.8	39	39	51	55	3.3	35/6	67	54	–	92/26
Antigua and Barbuda	0.1	15	5	1.0	67	0.1	0.1	11.1	2.4	28/6	66	34	1,730	0.2/18
Bahamas	0.2	24	5	1.9	37	0.3	0.3	24.7	2.5	38/4	69	65	4,060	5.4/1
Barbados	0.3	18	8	1.0	72	0.3	0.3	14.2	2.0	28/10	71	42	3,930	0.2/77
Cuba	10.1	17	6	1.1	64	11.6	13.1	16.8	1.8	29/8	73	70	–	44.2/28
Dominica	0.1	22	5	1.7	40	0.1	0.1	12.6	3.4	41/6	65	–	970	0.3/23
Dominican Republic	6.2	33	8	2.5	28	8.4	11.5	64	4.1	41/3	63	52	1,380	18.8/30
Grenada	0.1	25	7	1.8	39	0.1	0.2	15.4	2.9	36/6	71	–	990	0.1/41
Guadeloupe	0.3	20	7	1.4	51	0.4	0.4	23	2.6	31/7	70	46	–	0.7/22
Haiti	5.8	36	13	2.3	30	8.4	14.1	108	5.5	44/3	53	28	320	10.7/32
Jamaica	2.3	28	6	2.2	32	2.8	3.5	28	3.4	37/6	70	54	1,300	4.2/24
Martinique	0.3	18	7	1.1	62	0.3	0.4	20	2.4	28/8	71	71	4,270	0.4/17
Netherlands Antilles	0.3	19	6	1.3	53	0.3	0.4	26	2.9	33/5	71	66	–	0.4/8
Puerto Rico	3.2	20	6	1.3	52	3.8	4.7	16.0	2.7	32/8	73	67	2,890	3.4/15
St. Kitts-Nevis	0.04	29	11	1.8	39	0.05	0.05	42.8	3.6	37/10	64	45	820	0.1/0
Saint Lucia	0.1	31	6	2.5	28	0.1	0.2	26.1	4.2	50/5	69	40	1,060	0.2/27
St. Vincent and the Grenadines	0.1	26	6	2.0	35	0.1	0.2	46.8	4.0	44/5	65	–	860	0.1/50
Trinidad and Tobago	1.2	25	7	1.9	37	1.5	1.7	28	2.9	34/6	70	23	6,900	2.0/3
TROPICAL SOUTH AMERICA	225	32	8	2.4	29	308	422	70	4.2	38/4	63	66	1,860	5,446/7
Bolivia	6.2	42	16	2.7	26	9.5	17.0	124	6.3	44/3	51	46	510	424.2/3
Brazil	138.4	31	8	2.3	30	187.1	251.3	71	4.0	37/4	63	68	1,890	3,286.5/9
Colombia	29.4	28	7	2.1	33	39.0	50.6	53	3.6	37/4	64	67	1,410	439.7/5
Ecuador	8.9	35	8	2.7	26	13.2	20.0	70	5.0	42/4	64	45	1,430	109.5/9
Guyana	0.8	26	6	2.2	31	0.9	1.2	35	3.3	37/4	68	32	520	83.0/2
Paraguay	3.6	35	7	2.8	25	5.3	7.8	45	4.9	42/4	65	39	1,410	157.0/5
Peru	19.5	35	10	2.5	28	27.7	38.3	99	5.2	41/4	59	65	1,040	496.2/3
Surname	0.4	28	8	2.0	34	0.5	0.6	31	4.1	43/5	69	66	3,520	63.0/2
Venezuela	17.3	33	6	2.7	25	24.7	35.4	39	4.1	41/3	69	76	4,100	352.1/4
TEMPERATE SOUTH AMERICA	46	24	8	1.[illegible]	44	56	67	32	3.1	30/8	70	83	2,020	1,433/12
Argentina	30.6	24	8	[illegible]	44	37.2	45.6	35.3	3.4	30/8	70	83	2,030	1,068.3/13
Chile	12.0	24	6	[illegible]	39	14.9	18.1	23.6	2.6	32/6	70	83	1,870	292.3/7
Uruguay	3.0	18	9	0.9	77	3.4	3.8	33.2	2.8	27/11	69	84	2,490	68.0/8

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	Pop. 1985	Birth Rate	Death Rate	Nat. Inc.	Doub. Time	Pop. 2000	Pop. 2020	Inf. Mort.	TFR	<15/>64	Life Expect.	% Urban	GNP p.c.	Area
EUROPE	492	13	10	0.3	240	509	507	15	1.8	22/13	73	73	8.200	1.881/29
NORTHERN EUROPE	83	13	11	0.1	465	84	83	9	1.8	21/15	74	75	9.680	608/11
Denmark	5.1	10	11	-0.1	–	5.0	4.6	8.2	1.4	20/15	74	83	11.490	16.6/62
Finland	4.9	14	9	0.5	154	5.0	4.9	6.0	1.7	20/12	74	60	10.440	130.1/7
Iceland	0.2	19	7	1.2	60	0.3	0.3	7.1	2.2	27/10	77	89	10.270	39.8/2
Ireland	3.6	19	9	1.0	71	4.3	5.8	10.5	3.0	31/11	73	56	4.810	27.1/14
Norway	4.2	12	10	0.2	365	4.2	4.1	7.8	1.7	21/15	76	71	13.820	125.2/3
Sweden	8.3	11	11	0.0	6.930	7.9	7.4	7.0	1.6	19/16	76	83	12.400	173.7/7
United Kingdom	56.4	13	12	0.1	630	57.0	55.9	10.1	1.8	20/15	73	76	9.050	94.5/29
WESTERN EUROPE	155	12	11	0.1	729	154	144	10	1.6	20/14	74	83	10.870	383/30
Austria	7.5	12	12	0.0	–	7.5	7.3	12.0	1.6	20/15	73	55	9.210	32.4/19
Belgium	9.9	12	11	0.1	1.155	9.9	9.2	11.3	1.6	20/14	73	96	9.160	11.7/25
France	55.0	14	10	0.4	198	56.8	57.5	9.0	1.8	22/13	75	73	10.390	211.2/34
Germany, West	61.0	10	11	-0.2	–	58.4	49.9	10.1	1.3	17/15	74	94	11.420	96.0/30
Luxembourg	0.4	12	11	0.0	3.465	0.4	0.3	11.2	1.6	19/13	72	78	12.190	1.0/–
Netherlands	14.5	12	8	0.4	192	14.7	14.0	8.4	1.5	22/12	76	88	9.910	16.4/23
Switzerland	6.5	11	9	0.2	330	6.4	5.9	7.7	1.6	19/14	76	58	16.390	15.9/10
EASTERN EUROPE	112	16	11	0.5	140	120	127	19	2.1	24/11	71	62	–	382/45
Bulgaria	8.9	14	11	0.2	315	9.4	9.3	16.8	2.0	22/12	72	65	–	42.8/37
Czechoslovakia	15.5	15	12	0.3	248	16.5	17.3	15.6	2.1	25/11	71	74	–	49.4/40
Germany, East	16.7	14	13	0.1	990	16.9	16.8	10.7	1.8	19/15	72	77	–	41.8/46
Hungary	10.7	12	14	-0.2	–	10.9	10.5	19.0	1.8	22/13	70	54	2.150	35.9/57
Poland	37.3	20	10	1.0	68	41.1	44.9	19.3	2.4	25/10	71	59	–	120.7/47
Romania	22.8	15	10	0.5	131	25.6	28.5	28.0	2.2	27/10	71	49	–	91.7/44
SOUTHERN EUROPE	143	13	9	0.4	165	151	153	18	1.9	24/12	73	69	4.810	508/37
Albania	3.0	28	6	2.2	32	4.0	5.3	43	3.6	35/5	71	34	–	11.1/25
Greece	10.1	14	9	0.5	154	10.9	11.6	14.9	2.1	22/13	74	70	3.970	50.9/30
Italy	57.4	11	10	0.1	990	57.8	54.8	12.4	1.6	21/14	74	72	6.350	116.3/41
Malta	0.4	15	8	0.7	103	0.4	0.4	14.1	2.1	24/9	72	85	3.710	0.1/44
Portugal	10.3	14	9	0.5	136	11.1	12.1	19.8	2.0	26/11	71	30	2.190	35.6/39
Spain	38.5	13	7	0.6	116	41.7	43.4	9.6	2.0	26/11	74	91	4.800	194.9/41
Yugoslavia	23.1	17	10	0.7	99	24.6	25.0	31.7	2.1	24/9	70	46	2.570	98.3/31
USSR	278	20	10	1.0	71	316	364	32	2.4	25/10	69	64	6.350[3]	8.649/10
OCEANIA	24	21	8	1.2	56	28	32	39	2.7	29/8	71	71	8.570	3.286/6
Australia	15.8	16	7	0.9	82	17.2	18.4	10.3	1.9	25/10	75	86	10.780	2.967.9/6
Fiji	0.7	31	6	2.5	28	0.8	0.9	28.8	3.6	.7/3	62	37	1.790	7.1/13
French Polynesia	0.2	32	6	2.6	27	0.2	0.3	23	3.9	46/2	62	57	8.190	1.5/19
New Caledonia	0.2	25	6	2.0	35	0.2	0.2	11	3.6	36/4	64	61	7.790	7.4/1
New Zealand	3.3	16	8	0.8	90	3.6	4.0	12.5	1.9	27/10	74	83	7.410	103.7/2
Papua-New Guinea	3.3	40	14	2.7	26	4.6	6.4	98	6.0	44/4	53	13	790	178.3/1
Samoa, Western	0.2	34	8	2.7	26	0.2	0.3	49	4.9	40/5	65	22	–	1.1/43
Solomon Islands	0.3	43	12	3.2	22	0.4	0.7	86	7.2	48/3	57	9	640	11.0/2
Vanuatu	0.1	40	13	2.8	25	0.2	0.3	98	6.0	45/2	54	18	–	5.7/6

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General Notes

World Population Data Sheets of various years should not be used as a time series. Because every attempt is made to use the most recent and reliable information available, fluctuations from year to year often reflect improved or revised estimates based on new data sources or studies rather than actual changes in levels. This is particularly true of countries in the less developed regions for which statistics are often compiled from incomplete data and assumptions derived from demographic models.

Regional and World totals: Population totals include small areas not listed separately; regional data have been independently rounded and may not equal the sum of their parts; regional and world rates and percentages are weighted averages of those countries for which the data are available. Regional totals are not computed where figures are available for less than seventy-five percent of the population. A dash (—) is printed where no reasonable estimate is available. 0 indicates that a statistic rounds to zero.

Sources of data and estimates: Unless otherwise cited, basic data used come primarily from the following sources: United Nations (UN): *Demographic Yearbook*, *Population and Vital Statistics Report* of the UN Statistical Office; *Demographic Indicators of Countries: Estimates and Projections as Assessed in 1982* (forthcoming), and *World Population 1983 and 1984* (forthcoming) of the U.S. Bureau of the Census. Other sources include the World Bank estimates and projections, country reports of the World Fertility Survey, official country publications, special studies, and direct communication with demographers and statisticians in the U.S. and abroad. Specific data sources may be obtained from PRB.

Footnotes

[1]The *Data Sheet* lists all geopolitical entities with a population larger than 150,000 and all members of the United Nations. Classification of "more developed" and "less developed" regions follows UN practice, whereby "more developed" regions comprise all of Europe and North America, plus Australia, Japan, New Zealand, and the USSR. All other regions and/or countries are classified as "less developed."

[2]Based upon data from a recent census or by incorporating estimates made by the UN, the U.S. Bureau of the Census, and official country publications.

[3]Annual number of births or deaths per 1,000 population. For more developed countries (MDCs) with complete registration of vital events, nearly all rates refer to 1982 or 1983. For LDCs, most of whom lack complete registration systems, estimates refer to some point in the early 1980s. "Crude" rates, particularly the crude death rate, can be affected by a population's age composition; thus, the higher death rates for MDCs are a reflection of the larger proportion of the older population in those countries (which is in turn caused by lower birth rates in MDCs).

[4]Birth rate minus death rate; since the rates were based on the unrounded birth and death rates, they do not always exactly equal the difference between the rates shown on the *Data Sheet*.

[5]Based on the current unrounded rate of natural increase (RNI). This column is provided to give some indication of the potential effect of different levels of the RNI and is *not intended* to forecast the actual doubling of any population. The columns on projected populations in 2000 and 2020 should be consulted for the change in population size actually anticipated under a reasonable set of assumptions regarding future birth and death rates.

[6]For most countries, projected by applying growth rates incorporated in projections prepared by the UN, the World Bank, or the U.S. Bureau of the Census. For countries with low fertility (a total fertility rate of 2.0 or less), PRB projections incorporating an assumption of constant fertility were used. Projections to 2020 are, of course, subject to particularly wide margins of error.

[7]Annual number of deaths to infants under one year of age per 1,000 live births in a given year. For countries with complete or nearly complete registration as considered by the UN, nearly all data refer to 1982 or 1983 and are from the UN Statistical Office, *Population and Vital Statistics Report, Data Available as of 1 January 1985* (forthcoming) or official country publications; these rates are shown to one decimal place. For countries with incomplete data, estimated rates are generally from the late 1970s to early 1980s and are from the UN *Demographic Indicators . . .*, projections of the World Bank, official country data, or special studies.

[8]The total fertility rate (TFR) indicates the average number of children that would be born to each woman if each were to live through her childbearing lifetime (usually considered ages 15-49) bearing children at the same rate as women of those ages actually did in a given year. A TFR of 2.1 to 2.5, depending upon mortality conditions, indicates "replacement level" fertility: the level at which a country's population would eventually stop growing (or declining), assuming no net migration. Most TFRs shown here refer to the 1980-1985 period for less developed countries and are from the UN Population Division's *1982 Assessment . . .* or survey estimates such as those of the World Fertility Survey. For more developed countries, rates are the latest officially reported as shown in the source noted above or from Alain Monnier, *L'Europe et les pays développés d'outre-mer. Données statistiques*, *Population*, 39:4/5, Institut national d'études démographiques, Paris, 1984, and refer to 1980-1983.

[9]The percentages of the population under age 15 and over age 64, i.e., in the "dependent" ages, indicate the economic burden which must be carried by those in the working ages, 15 to 64. Those under 15 also constitute the future population which must be absorbed into the labor market at the same time it begins to contribute to population growth by forming new families. These figures are taken from the UN *Demographic Indicators . . .*, the *Demographic Yearbook, 1983* (forthcoming), and official country data.

[10]Average years an infant can be expected to live under current mortality conditions. Estimates are primarily those of the UN Population Division or the *Demographic Yearbook* and refer to the late 1970s or early 1980s.

[11]Percentage of total population living in areas termed urban by that country. Estimates refer to some point in the 1970s or early 1980s.

[12]Gross National Product per capita figures are provisional estimates from the *World Bank Atlas, 1985*. (a) GNP per capita estimate for the USSR refers to 1982 and is from the *World Factbook, 1984*, the National Technical Information Service.

[13]Data for total area and for "cultivated" land are from the *Production Yearbook, 1983* of the UN Food and Agriculture Organization (FAO). As shown on the *Data Sheet*, cultivated land uses the FAO category "arable land and land under permanent crops." This FAO definition includes land used for seasonal crops (double-cropped areas counted once), land temporarily fallow, and that used for permanent crops such as rubber trees. Countries vary widely in the availability of land reserves for expansion of agricultural zones. Some areas may possess good opportunities for such expansion while others may be subject to serious economic and ecological constraints. At present, large areas of Africa are classified as fallow rather than "arable" due to shifting cultivation. Data for Taiwan are from the *Statistical Yearbook of the Republic of China, 1982*. (Note: 1 square mile = 2.59 sq. kilometers).

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